DIG3715 Game Content Production 2
Spring 2022

Course Meetings: MW 4/4-5, TH 8-9/9
Course Mode: Synchronous
Course Location: Via Zoom

Course Description

This course elaborates on concepts and technical practices introduced in DIG3713, to craft effective digital games. Students will examine conceptual techniques in game design and their use in DAS design practice, explore comparative introduction of frameworks for game design, and practice technical components of 2D and 3D game design.

Course Prerequisites

BA in Digital Arts and Sciences major, DIG3713 with minimum grade of C

Learning Outcomes

By the end of this course, students will be able to:

- Schedule and document a multi-milestone development cycle
- Implement a 3D software to engine development pipeline
- Create 3D assets, textures, and advanced materials
- Edit and animate 3D characters
- Organize 3D environment lighting
- Build gameplay systems and scripts
- Craft and evaluate all aspects of a complex indie-style 3D video game from initial concept to final game build

Materials & Books

Required

- Unity HUB and Unity 2019+ (Free registration required)
- Visual Studio (or similar scripting software)
- Autodesk Maya (Free registration required)
- Adobe Photoshop CC or Gnu Image Manipulation Program (GIMP)

Supplemental

- GitHub Code Repository (Free registration required)

- Lynda.com Online Unity Tutorials (Free access for UF students)
- Official Unity Development Community https://unity3d.com/community
- Autodesk Academy https://academy.autodesk.com
- Autodesk Indestructables Community https://www.indestructables.com/howto/games/
- ArtStation https://www.artstation.com
- Digital Graphic Drawing Tablet with Pen (Photoshop compatible)

Course Schedule

This schedule is only a guide and is subject to change. Unless otherwise indicated, assignments and readings are due the day they are listed on the syllabus, not the following day.

Week	Subject	Assignments Due
1	Introduction to 3D Game Development Syllabus Overview Three-Dimensional Game Pipelines Vertical Design Methodology	
2	3D Game Design Document (GDD) Creation Systems Design for 3D Elements Pathing and Navigation in a 3D World Complex Character Design Discussion Virtual Space and Physical Scale for 3D Games Interactive Storytelling Discussion	GDD V1.0 Design document outlining all characters, environments, and gameplay systems for a custom 3D video game
3	3D Development Pipeline Maya to Unity to Maya Iterative Development Pipeline Unity ProBuilder System Exercise Physics-Based Rendered Material Creation Exercise The FBX Exporter Optimal Settings and Use 3D Collision Application and Options	3D Asset with PBR Material Two custom 3D model variants with complex multi-texture materials applied
4	3D Character Development Hierarchy Design for Maya Character Creation Character Skeletal Dependencies Maya Keyframe Animation Exercise Maya to Unity Animation Pipeline	Animated 3D Player Gif or video demonstrating a 3D character mobility and idle cycles in Maya
5	User Interfaces For 3D Games Integrating 3D Models into User Interface Functionality Positional Dialogue Techniques Designing Consistent Interface Components Encounter Volumes in a 3D World	UI Screenshots Two screenshots in Unity of 3D Health or Lives along with positional dialogue component
6	PROTOTYPE MILESTONE Whitebox 3D Game Level With ProBuilder Exercise Player Navigation, Physics, and Camera in a 3D World Basic Gameplay Systems Overview Milestone Readme.txt Discussion Introduction of Visual Design Rules in Whitebox Updated GDD exercise	PROTOTYPE MILESTONE GDD V2.0 Game executable build containing a whitebox 3D environment with basic core gameplay in place, and updated design document

7	Lighting, Color, and Post-Processing Ambient and Directional Lights Spot, Point, Custom Light Techniques Prefabs With Lighting Exercise Particle Editor and Systems Review Global and Local Post-Processing Systems Development	Lighting Screenshots Two images in Unity showing in-game lighting, post-processing systems, and particle effects functioning correctly
8	MIDTERM MILESTONE Creating In-Game Tutorials and Learning Objectives Developing 3D Key Assets and Encounters Timing, Pacing, and Delivery Tuning Discussion Game Scope and Scale Evaluation Exercise	MIDTERM MILESTONE Game executable build containing near final art, systems, and design elements
9	Bug Testing, Tracking, and Prioritization Strategies For Testing 3D Worlds and Content Bug Tracking Software and Methodology Overview Scheduling Game Development To Gold Master Exercise Scope and Feature Cutting/Triage Discussion	Prioritized Bug Report Document listing all current bugs, missing features, cut content with priority and delivery dates
10	Auxiliary Game Levels Game Start and Introduction Screens Assembling a Multi-Scene Story Game Transition Screen Design Outro, Game Over, Credits Screens	Aux Game Screenshots In game screenshots showing the Game Start and Credits screen designs
11	Game Optimizations 3D Asset Collision Optimization Exercise Prefab Creation and Benefits Texture Size and Packing Discussion Optimization Lighting Pass and Settings	Optimization List Document listing all actions taken to optimize content in your game
12	BETA MILESTONE Content Lockdown and Game Evaluation Feature Complete Testing Exercise Peer-to-Peer Gameplay Sessions GDD Update to Final Exercise	BETA GAME BUILD GDD V3.0 Feature complete game executable build deliverable along with updated final design document
13	Advanced Game Audio 3D Global and Local Sound Techniques 3D Positional Audio Design	Audio Design Exercise Adjusting positional audio and blending volumes
14	Micro-Levels External Gameplay Space Design Overworld to Level Transition Development and Design 3D Special Encounter Architecture	Micro-level Exercise Large level to smaller gameplay space creation overview
15	GOLD MASTER MILESTONE Final Game Build Post-Mortem process	FINAL GAME BUILD Post-Mortem Final executable build of game, along with a detailed post-mortem document

Grading Criteria

Assignment / Assessment	Total Points	% of Grade
GAME DESIGN DOCUMENT V1.0 Initial document outlining all aspects of creating a unique 3D game	50	5
3D ASSETS WITH PBR MATERIAL Two custom models + materials using diffuse, specular, normal textures	50	5
UI SCREENSHOT Render in Unity of the game's 3D user interface components	100	5
PROTOTYPE MILESTONE Executable build of the initial game product state Updated design document	100	10
LIGHTING SCREENSHOTS Two screenshots in-game showcasing lighting, particles, and post-processing effects	50	5
MIDTERM MILESTONE Executable build of the game product demonstrating gameplay and art Updated design document	100	10
PRIORITIZED BUG REPORT Document outlining all known bugs and missing features - prioritized	50	5
AUXILIARY LEVEL SCREENSHOTS Two screenshots in-game showing the Game Start and Credits scenes	50	5
BETA MILESTONE Executable build of the content complete game product Final game design document version	100	10
MICRO-LEVEL SCREENSHOTS Two screenshots in-game demonstrating transitional gameplay scenes	50	5
FINAL PROJECT (GOLD MASTER MILESTONE) Final executable build of the unique 3D game product Post-mortem evaluation document	100	25

Grading Scale

Letter Grade	% Equivalency
A	94 – 100%
A-	90 – 93%
B+	87 – 89%
B	84 – 86%
B-	80 – 83%
C+	77 – 79%
C	74 – 76%
C-	70 – 73%
D+	67 – 69%
D	64 – 66%
D-	60 – 63%

E, I, NG, S-U, WF	0 – 59%

More information on grades and grading policies is here:
https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Materials and Supply Fees

Material and supply and equipment use fee information are available from the academic departments or from the schedule of courses (Florida Statutes 1009.24). The total course fee for this class is $0.00. The total course fee for each course is listed on the UF Schedule of Courses. (https://registrar.ufl.edu/soc/)

Course Policies

Attendance Policy, Class Expectations, and Make-Up Policy

We value participation more than mere attendance. The instructor is responsible for communicating the specific details of what percentage of your grade (if any) will be assigned to participation, and how class participation will be measured and graded. Interaction with your peers and the instructor will empower you to greater achievement.

In our course, attendance is taken at the beginning of each class period, and is calculated as the Participation element which makes up 10% of your overall grade. Any unexcused absences are factored into the Participation grade total. Exempt from this policy are only those absences involving university-sponsored events, such as athletics and band, and religious holidays, family emergencies, and health issues for which you must provide appropriate documentation in advance of the absence. All assignments are due by the stated date and time. Late assignments as a result of an unexcused absence may be submitted up to one week after the scheduled due date, incurring a 10% grade penalty.

Additionally, tardiness will not be tolerated. If you are tardy for three class periods, you will receive an unexcused absence

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:
https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Course Technology

The students will be required to have access to and use a personal computer with access to the Internet. Word editing software will be required for written assignments.

The University of Florida and Digital Worlds requires that students have access to and ongoing use of a laptop/mobile computer for DIG courses in order to be able to function in the current learning environment. Digital Worlds requires each student's laptop computer to meet certain minimum specs for heavy graphics use, the requirements documented below must be met.
https://digitalworlds.ufl.edu/programs/ba-in-digital-arts-sciences/technology-requirements/

Course Communications

Students can communicate directly with the instructor regarding the course material through the course management system (CANVAS) using "Canvas Mail".

Course Recordings

Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students

who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Creation of Original Content Ethics

For original projects and all assignment deliverables, students should remember that representations of acts of violence, coarse and offensive language, sexual behavior, bodily function and ability, neurodiversity, and personal identity are likely to cause extreme audience response, regardless of the creator's intentions. In addition, the recreation of such actions and subjects for fictional purposes may unintentionally traumatize or negatively impact those who collaborate in the creation of the images. While the university encourages students to explore themes and tell stories that may include this difficult subject matter, they should be cautioned against modes or styles of representation that might be considered unnecessarily offensive or potentially triggering. Instructors, faculty, and university administrators reserve the right to not show or share any student work they feel is inappropriate for their classroom or for public exhibition, as there may be concerns about the impact of such work on the community. We encourage students to consult with their faculty when producing work that might be considered controversial, and to err on the side of being cautious when it comes to making decisions about a project's content - in other words, make the PG-13 version of your story, not the R version, and certainly not the "unrated" version. This is also to help students understand that most professional creative situations have strict guidelines and limitations on such content and how it is produced: your ability to tell stories effectively with "less" is a strong professional skill that will aid in the dissemination of your work to a broader audience.

Course Technology Support

Technology Support Center

The [Technology Support Center](#) provides computer support for Digital Worlds students who access Zoom, lecture recordings, student equipment, facilities, and other technology-based resources.
http://digitalworlds.ufl.edu/support

For computer assistance related to Zoon, lecture recordings, student equipment, and facilities requests please email support@digitalworlds.ufl.edu.

UF Computing Help Desk

For support related to account services, technical consulting, mobile device services, software services, administrative support, application support center, and learning support services, please contact the [UF Computing Help Desk](#) available 24 hours a day, 7 days a week at 352-392-4357 or helpdesk@ufl.edu.

University Policies

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code) specifies a

number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Class Demeanor

Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Netiquette Communication Courtesy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats, more information can be found at:
http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:
https://catalog.ufl.edu/UGRD/academic-regulations/ferpa-confidentiality-student-records/

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/

Campus and Academic Resources

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit

the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.

Online Students Complaints: View the Distance Learning Student Complaint Process.

Disclaimer: This syllabus represents the instructor's current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.