Course description

This course focuses on the concepts, techniques and practice of 3-Dimensional computer animation for games. A strong emphasis will be placed on creating efficient, game-ready assets, as students build and integrate characters into the Unity3D game engine. Students will also learn the basics of texturing, UV mapping and rigging, and will adapt the principles of traditional animation to a game setting.

Prerequisites

The prerequisites for this course are GAME 210 and 230, with a C grade or better, as well as a commitment to learning how 3-Dimensional artwork is created for the gaming medium and a willingness to spend time in the lab and outside of class completing each stage of the class projects. Students should be inquisitive and willing to share with other students techniques they discover as they progress through the assignments.

Objectives

- Become familiar with the tools and techniques used in making 3D game art.
- Demonstrate competency in modeling game-ready and optimized 3D objects.
- Have basic ability texturing models.
- Have working knowledge of importing models into Unity and game pipelines in general.
- Have basic ability to animate 3D models using transforms, curves, and Biped.
- Demonstrate the knowledge, technique, and discipline needed to move on to the advanced course, Game 398.

Assessment and Grading:

Assignments

Students will be given several assignments throughout this course. The assignments are listed at the end of this syllabus. Specifics for each will be given in Blackboard. It is the students' responsibility to refer to Blackboard and the syllabus to see the exact date and time assignments are due.

Midterm Project

For the midterm, students are required to model a humanoid 3D character and submit the assets on Blackboard. Specifics will be given on Blackboard.

Final Project

At the end of the semester, students will create an additional character (not the one from the midterm), including textures and a core set of animations. During the scheduled Final Exam date, the class will implement their final characters into a Unity scene and control them. Specifics will be given on Blackboard.

Milestone Submissions

A milestone is an assignment turned in over several stages until the final submission. The final character has multiple milestone submissions. Specifics will be given on Blackboard.
Final Exam
There is no final exam in this course. It is replaced by the Final Project.

Grade Weighting and Scale
All grading is done on a point scale used to assess assignments, participation in classroom activities, the mid-term project, and the final project. At the end of the course, the student's grade is a percentage of total points earned over total points possible. Students will see the point value for each assignment posted in Blackboard.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments (each)</td>
<td>25</td>
</tr>
<tr>
<td>Midterm Project</td>
<td>200</td>
</tr>
<tr>
<td>Final Project</td>
<td>500</td>
</tr>
<tr>
<td>Milestone Submissions (each)</td>
<td>100</td>
</tr>
</tbody>
</table>

Grade Scale
To receive a grade of "A" a student must earn a minimum of 90% of the coursework point total.
To receive a grade of "B" a student must earn a minimum of 80% of the coursework point total.
To receive a grade of "C" a student must earn a minimum of 70% of the coursework point total.
To receive a grade of "D" a student must earn a minimum of 60% of the coursework point total.
Failure to receive a "D" grade will result in a grade of "F".

Failure to turn in a Final Project will result in a grade of ‘F’ for the course, regardless of the student's point total, since this project replaces the final exam.

‘C’ Grade Minimum
Students must have earned a ‘C’ grade or higher in prerequisite courses in the Game Design Major and Minor. For example, to take GAME 398, a ‘C’ or higher must have been earned in GAME 231.

Grading Criteria
While Blackboard reflects the grades of the assignments, it does not reflect all factors in the final grades, such as, for example, attendance and participation. Therefore, the grade as shown on Blackboard may not represent the final grade.

Assignments and projects are graded based on the criteria given below:
- completeness
- ambition/effort
- specification adherence
- technical execution
- aesthetic qualities

Specific criteria are given on Blackboard for each assignment.

Late Work and Make-up Policy
The first late assignment is given half credit. No late work will be accepted beyond the first. Milestones will not be accepted late. Meeting deadlines is one of the most important aspects of art production. Please pay careful attention to the DUE DATE & TIME for each assignment. DO NOT PROCRASTINATE. If extenuating circumstances prevent a student from finishing an assignment, the student must contact the instructor BEFORE the assignment is due.

Resources

A traditional textbook is not used in this course. Instructions and lessons will be covered in class, and online video examples will be available online at https://ericpiccio.com/ that will review some of in-class lessons. These are meant to augment class lectures, not replace them, and ARE NOT a viable alternative to attending class.

Several additional resources are recommended for in-depth information:

Recommended Texts:
Title: Autodesk 3DS Max 2018 Complete Reference Guide
Author: Kelly L. Murdock.
Publisher: SDC
ISBN#: 978-1585039500
Title: Autodesk 3ds Max 2016 Essentials
Author: Randi L. Derakhshani and Dariush Derakhshani
Publisher: Sybex
ISBN#: 978-1119059769

Title: Character Animation with 3D Studio Max
Author: Stephanie Reese
Publisher: Coriolis Group
ISBN#: 978-1576100547

Title: The Illusion of Life: Disney Animation
Authors: Frank Thomas and Ollie Johnston
Publisher: Hyperion
ISBN#: 0-7868-6070-7

Title: The Animator's Survival Kit
Author: Richard Williams
Publisher: Faber and Faber
ISBN#: 0-571-20228-4

Title: Figure Drawing for All It's Worth
Author: Andrew Loomis
Publisher: Titan Books
ISBN#: 978-0857680983

Websites References
http://www.cgsociety.org/: excellent forums for solving technical problems with 3D programs
http://rhizome.org/: for information about what's going on in the digital arts
http://animationnation.com/: an excellent animation community site
http://www.11secondclub.com/: The 11-Second Club, a monthly character animation competition

Autodesk Resources:
Interface Overviews:

Tutorials from Essentials:
http://usa.autodesk.com/adsk/servlet/item?siteID=123112&id=12754609&linkID=9241175

3ds Max Services, Support and Training Videos:
http://usa.autodesk.com/adsk/servlet/ps/index?siteID=123112&id=5585571&linkID=9241177

Essential Skills Movies:
http://download.autodesk.com/us/3dsmax/skillmoviesv9/

Required Class Material:
It is the student’s responsibility to obtain consistent, stable access to 3DS MAX 2018 and other software used in the class (listed below). Students who can use the lab to complete all assignments are not required to have a computer to do the coursework.

Software Needed:
The software below is needed in this course. It is installed on all class and game lab computers. Students do not need to acquire this software if they are able to use the lab to complete assignments.

- 3ds Max 2019 (student version available at http://students.autodesk.com)
- Unity3D (free version available for download from www.unity3d.com)
- Online backup. It is suggested that students use an online backup service to prevent their project files from being lost. External drives are very useful, but every semester multiple students report lost work due to damaged
or misplaced thumbdrives, corrupted files, or dead hard drives. Online backup is a good way to save your data. Dropbox, Google Drive and OneDrive are examples of services that students should explore. Most services offer free storage that is sufficient in size for this course.

**How to Be Successful in this Course**

Every 3D model represents a puzzle. This class teaches students how to approach and solve these challenges. Modeling is heavy on problem-solving and process and light on by rote memorization. Students who excel in this course are the ones who practice diligently.

Additionally:

- Follow all instructions in class and in any and all follow-up materials.
- Pursue additional help from the resources listed on this syllabus and elsewhere, such as Google, Youtube, Vimeo, etc.
- Put in the time. Start early, finish early and allow time for polish.
- Attend every session of class.
- Consider taking this course later or adjusting your schedule if you are on credit hour overload or if you are taking other time-consuming classes (like studio art classes). Previous students claim spending as much as 15 hours per week on this course.

**GMU Honor Code:**

To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the university community, have set forth this honor code:

Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.

See GMU Honor Code: [http://academicintegrity.gmu.edu/honorcode/](http://academicintegrity.gmu.edu/honorcode/)

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If you are a student with a disability and you need academic accommodations please see me and contact the Disability Resource Center (DRC) at 703.993.2474. All academic accommodations must be arranged through that office. Students must inform the instructor at the beginning of the semester, and the specific accommodation will be arranged through the Disability Resource Center.

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Sign up for the Mason Alert System by visiting the website [https://alert.gmu.edu](https://alert.gmu.edu), and an emergency poster exists in each classroom explaining what to do in the event of crises; emergency procedures exists on: [http://www.gmu.edu/service/cert](http://www.gmu.edu/service/cert)

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**Students must use their MasonLIVE email account to receive important University information, including messages related to this class. See [http://masonlive.gmu.edu](http://masonlive.gmu.edu) for more information.**

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**Course Schedule**

The Course Schedule is listed on Blackboard. The schedule may be revised, based on the instructor’s discretion, to meet the needs of the class.