**CIT 446 – 3D Modeling and Animation**

# Course Details

**Meeting Times:** Tuesday and Thursday, 2:00PM – 3:15PM

**Location:** Weisburg Family Applied Engineering Complex (WAEC) Rm. 1104

**Course Description:** This is a three (3) credit hour course. Covers 3D modeling to create environments and character animation. Explores 3D forms within sculpture, architecture, animation and games. Includes development of simplifications, abstractions and hyper-realities for gaming.

**Prerequisites**: CIT 340 or IST 360: Game Development I: 2D

**Required Texts:** None

**Suggested Texts:** *Digital Modeling* by William Vaughan

# Instructor

**Name:** Matthew Mundell

**Office:**  Prichard Hall 208

**Phone:**  (304) 696-3436

**Email:**  mundell2@marshall.edu

**Office Hours:** MWF 12-1PM

 TR 12:30-2PM

Or by appointment.

# Objectives

There will be three (3) contact hours of classroom lecture and discussion per week. Coursework will include classroom lectures, assignments, and exams along with in-class discussion.

|  |  |  |
| --- | --- | --- |
| **Learning Outcomes** | **Practice** | **Assessment** |
| Students will be able to design and generate 3D objects using Autodesk’s Maya. | In class lecture and hands on demonstration | Assignments 1-9, Final Project |
| Students will be able to design materials for 3D objects and environments in Maya and in a game engine. | In class lecture and hands on demonstration | Assignments 5, Final Project |
| Students will be able to UV unwrap and texture 3D objects in Maya, and create textures and other graphics in Adobe Photoshop. | In class lecture and hands on demonstration | Assignments 4, 5, Final Project |
| Students will understand the process of high-poly sculpting and normal-map baking in Autodesk Mudbox. | In class lecture and hands on demonstration | Assignment 7, Final Project |
| Students will understand the basic concepts and techniques of rigging, skinning and skeletal animation for 3D media. | In class lecture and hands on demonstration | Assignments 8, 9, Final Project |

# Policies

## Computer Requirements

Course materials will be provided through MUOnline (<http://www.marshall.edu/muonline/>). Class announcements and other communications will be sent using your Blackboard account. You can reach me by emailing me through MUOnline or at my Marshall email (mundell2@marshall.edu). Please use your official Marshall University email address when sending class related communications. It’s good practice to check your email and MUOnline frequently (at least once a day). If you have a smart phone, I encourage you to setup your Marshall account on it so you get notified as soon as possible when you receive email.

Assignments will rely on several game development and artistic tools. All will be provided on university computers. Primarily we will use Autodesk Maya; a free educational version is available at <http://www.autodesk.com/education/free-software/maya> - just create a free account using your .edu email address. We will also use Adobe Photoshop; Photoshop has student discounts available, or you can use alternative image-editing tools that are available for free, such as GIMP. Later we will explore Autodesk Mudbox, which is also available for students at <http://www.autodesk.com/education/free-software/mudbox>. Finally, to see our work in a real application we will use Unreal Engine 4, which is free to use (until you profit off it) and available at <https://www.unrealengine.com/download>.

## Grading

Coursework will account for the following percentages of your final grade:

Assignments: 70%

Final Project: 20%

Attendance: 10%

Final letter grades are determined based on the following scale:

90-100% A

80-89% B

70-79% C

60-69% D

0-59% F

The instructor reserves the right to change these values depending on overall class performance and/or extenuating circumstances.

### Submission Guidelines

Assignments will be given and turned in through MUOnline unless otherwise noted. Project submissions should include all related files in a compressed (.zip) folder, including the Maya file(s), exported .fbx files, Photoshop files, etc. (these will be specified for each assignment). Submissions should follow the following naming convention:

CIT446\_*LastName*\_*FirstInitial*\_*AssignmentName*.zip

### Assessment of Work

As the work in this class is artistic in nature, the subject matter and artistic style is up to, unless otherwise specified (such as when first learning a certain technique). A rubric will be provided for each assignment to describe how it will be graded, including satisfactory completion, having an allowed number of polygons for 3D models, if 3D models have any n-gons (faces with more than 4 sides) or other improper geometry, etc.

While students are encouraged to help each other learn and study, you are responsible for turning in your own work. If you give or receive assistance to/from another student, **you must** include a comment about it with your submission, or it may be investigated as Academic Dishonesty (see below).

### Late Policy

All Assignments are due by midnight on the provided due date. However, because your understanding of the material is top priority, late work will still be accepted at a penalty of 5% lost per day late after the first day. In other words, if you turn something in an hour late, there will be no penalty. If you turn something in a day late, you will lose 5% off your final score, so you can still get at most a 95%.

I will put in 0’s for late assignments until they are turned in so that you know they are late and what the resulting impact on your overall grade would be.

The absolute last day for submitting late work is **Friday, May 4**.

## Attendance

Attendance is worth 10% of your final grade. Your attendance grade will be reduced for each **unexcused** absence after your 3rd (In other words, you can miss 3 classes before it starts to hurt your grade). If you miss class, **you are still responsible for all assignments.**

## Inclement Weather

Students can find information concerning Marshall’s policy regarding inclement weather regarding inclement weather online via <http://www.marshall.edu/ucomm/weatheremergency-closings/>. Please note that a two-hour delay means that classes that 8/9AM classes are cancelled and classes that begin at 10:00 a.m. begin on time. Classes that begin at 9:30 a.m. meet at 10:00 a.m. and continue for the remaining period of that class.

## Withdrawal Policy

This course follows standard University policy for withdrawals. The last day to drop this course with a “W” is March 16.

## Cell Phones

Please be respectful of others and set your phone to ‘Silent’ or ‘Vibrate’ during class. If you need to take a call, please take it outside.

## Academic Dishonesty

As described in the Marshall University Creed, Marshall University is an “Ethical Community reflecting honesty, integrity and fairness in both academic and extracurricular activities. ”Academic Dishonesty is something that will not be tolerated as these actions are fundamentally opposed to “assuring the integrity of the curriculum through the maintenance of rigorous standards and high expectations for student learning and performance” as described in Marshall University’s Statement of Philosophy. A student, by voluntarily accepting admission to the institution or enrolling in a class or course of study offered by Marshall University accepts the academic requirements and criteria of the institution. It is the student’s responsibility to be aware of policies regulating academic conduct, including the definitions of academic dishonesty, the possible sanctions and the appeal process. For the purposes of this policy, an academic exercise is defined as any assignment, whether graded or ungraded, that is given in an academic course or must be completed toward the completion of degree or certification requirements. This includes, but is not limited to: Exams, quizzes, papers, oral presentations, data gathering and analysis, practical and creative work of any kind.

If you are found cheating on projects or plagiarizing answers from the Internet or other sources there will be no second chance. In this course, STUDENTS ARE NOT TO “COPY & PASTE” MATERIAL FROM A SOURCE INTO ANY ASSIGNMENT UNLESS SPECIFICALLY AUTHORIZED BY THE INSTRUCTOR. Your penalty is that you will receive a failing grade for the course. In those cases in which the offense is particularly flagrant or where there are other aggravating circumstances, additional, non-academic, sanctions may be pursued through the Office of Judicial Affairs. Notice of an act of academic dishonesty will be reported to the Department Chair, Dean of the College of Science, and to the Office of Academic Affairs. Please refer to the Marshall University Undergraduate Catalog for a full definition of academic dishonesty.

## Policy for Students with Disabilities

Marshall University is committed to equal opportunity education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disability Services (ODS) in Prichard Hall 117 (304.696.2467) to provide documentation of their disability. Following this, the ODS Coordinator will send a letter to each of the student’s instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing, and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, access the website for the Office of Disabled Student Services: <http://www.marshall.edu/disabled>

## University Policy

By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to [www.marshall.edu/academic-affairs/policies/](http://www.marshall.edu/academic-affairs/policies/).

*Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment*

# Schedule

The following is a tentative class schedule with topics and due dates. This can change based on class progress or extenuating circumstances.

|  |  |  |  |
| --- | --- | --- | --- |
| Week 1 | 9-Jan | Overview and Syllabus |  |
| 11-Jan | Basic 3D Modeling |  |
| Week 2 | 16-Jan |  |  |
| 18-Jan |  | Assignment 1 Due |
| Week 3 | 23-Jan |  |  |
| 25-Jan |  |  |
| Week 4 | 30-Jan |  | Assignment 2 Due |
| 1-Feb |  |  |
| Week 5 | 6-Feb | UV Unwrapping |  |
| 8-Feb |  | Assignment 3 Due |
| Week 6 | 13-Feb | Texturing with Photoshop |  |
| 15-Feb |  |  |
| Week 7 | 20-Feb | Photoshop, Materials in Maya | Assignment 4 Due |
| 22-Feb |  |  |
| Week 8 | 27-Feb | Character Modeling |  |
| 1-Mar |  | Assignment 5 Due |
| Week 9 | 6-Mar |  |  |
| 8-Mar |  |  |
| Week 10 | 13-Mar | High Poly Sculpting | Assignment 6 Due |
| 15-Mar |  |  |
| Week 11 | 20-Mar | No Class – Spring Break |  |
| 22-Mar | No Class – Spring Break |  |
| Week 12 | 27-Mar | Rigging, Skinning, Animation |  |
| 29-Mar |  | Assignment 7 Due |
| Week 13 | 3-Apr |  |  |
| 5-Apr |  |  |
| Week 14 | 10-Apr |  | Assignment 8 Due |
| 12-Apr |  |  |
| Week 15 | 17-Apr |  |  |
| 19-Apr | Materials in Game Engines | Assignment 9 Due |
| Week 16 | 24-Apr |  |  |
| 26-Apr |  |  |
| Week 17 | Thurs, May 3 |  | Final Project Due |