

MIAMI INTERNATIONAL UNIVERSITY OF ART & DESIGN

MISSION STATEMENT

Miami International University of Art & Design is a multi-campus, career-oriented institution that provides students with academic preparation and practical skills through programs in the applied arts and design industries. The institution prepares its undergraduate students for entry-level positions and its graduate students for advancement in their chosen fields. The University is dedicated to fostering a culture that encourages creativity, research, and learning-centered endeavors.

COURSE SYLLABUS

Course Number: CA3500
Course Title: Intro to Special Effects
Class Meetings: Thursdays 1:00 - 5:00 PM
Session / Year: Winter 2012
Instructor Name: Juan Borrero, MFA Computer Animation
Email Address: jborrero@aia.edu. This is the best way of getting in contact with the instructor.
Telephone: N/A
Office Hours: It is recommended that a student make an appointment with the instructor, if he/she needs to see the instructor outside of class time.

Course Title

Course Description: This course introduces new tools, concepts, and techniques. Students apply and implement dynamic simulations to new or existing projects. This course also allows the students to learn some basic compositing techniques between 3D elements and particle systems.

Course Length: 11 weeks

Contact Hours: 4 hours

Credit Values: 3 credits

Learning Objectives:

Upon successful completion of the course, the student will:

1. The student will be able to demonstrate project management skills, through the use of particle caching and baked simulations.
2. Through the use of the particle tools, the student will be able to create particle simulations of real life event with 80-100% accuracy.
3. The student will understand the basic physics math needed to create advanced particle simulations to enhance and meet the criteria of their output product.
4. Through the use of compositing software the student will match, correct, and composite their simulated particles to a rendered 3D scene or live footage with seamless integration

Course Prerequisite(s): N/A

Text(s): N/A

Materials and Supplies: N/A

Estimated Homework: 4-6 hours per week

Technology Needed: Portable Hard Drive, CD/DVD's

Grading Scale:

All assignments must have clear criteria and objectives. All students shall be treated equitably. It will be every student's right to know his or her grade at any reasonable time he or she requests it. The criteria for determining a student's grade shall be based on a percentage of total points, as follows:

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|-----------|------|
| 93 – 100% | = A |
| 90 – 92% | = A- |
| 87 – 89% | = B+ |
| 83 – 86% | = B |
| 80 – 82% | = B- |
| 77 – 79% | = C+ |
| 73 – 76% | = C |
| 70 – 72% | = C- |
| 65 – 69% | = D+ |
| 60 – 64% | = D |
| 0 – 59% | = F |

Student Evaluation / Grading Policies:

The following assignments, projects, and exams fulfill the learning objectives for this course:

| Assignment | Possible Points |
|--|-----------------|
| Assignment 1 – Fireworks simulation (Week 3) | 10% |
| Assignment 2 – Missile/Explosion Simulation (Week 7) | 10% |
| Assignment 3 – Rube Goldberg Machine(Week 9) | 15% |
| Classwork/Minor Assignments/Participation | 10% |
| Midterm - Waterfall Simulation | 25% |
| Final – Story Simulation | 30% |
| Total Points | 100 |

Electronic Submission of Assignments:

Any assignments submitted to the Instructor as electronic attachments to an email are the responsibility of the student. Instructor will acknowledge the receipt of the email to the student within 24 hours of receiving it. If the student does not receive an acknowledgement within 24 hours it is the student's responsibility to contact the Instructor, otherwise it is assumed that the assignment has not been sent.

Students with Disabilities:

The University provides accommodations to qualified students with disabilities. The Student Affairs Department assists qualified students with disabilities in acquiring reasonable and appropriate accommodations and in supporting their success at the University. The University is committed to providing qualified students with a disability an equal opportunity to access the benefits, rights and privileges of University services, programs and activities in compliance with The Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. Students who believe they are in need of accommodations should contact the Student Affairs Department regarding the documentation necessary relating to your accommodations. If you have a concern or complaint in this regard, please contact the Dean of Student Affairs. Complaints will be handled in accordance with the University's

Student Grievance Procedure for Internal Complaints of Discrimination and Harassment.

Course Attendance:

The University expects students to attend all scheduled meetings of each course. Students should be prepared to start the quarter on the first day of classes and to add/drop courses early in the first week of the quarter to minimize absences. Absences accrue against the student even if the student was not originally registered for the class but adds it after the start of classes.

Students who do not attend any of their classes during the Add/Drop will be withdrawn from the University. They must contact the Assistant Director of Readmissions to return.

Students must attend a minimum of nine classes per course in order to receive a passing grade in the course. Attending less than nine classes or 36 hours of course instruction will result in course failure unless the Dean of Academic Affairs determines that there are acceptable extenuating circumstances. Students should be prepared with written documentation of circumstances beyond their control that contributed to the absences for consideration by the Dean. If the student is allowed to remain in the class and receive a grade there will need to be a description of appropriate make up work from the respective Instructor. Please note that a student can withdraw from any class through the ninth week without receiving an "F." Course withdrawal forms must be submitted to the Registrar's Office by the close of business on Friday of week 9 in order to receive a "W" grade. Holidays and official class cancellations do not count as absences.

REQUIREMENTS

1. Attend all class meetings, arrive on time, and stay for the duration of the class.
2. Faculty policies regarding attendance, tardiness arriving to class and returning from breaks, or leaving class early can be found in the course syllabus.
3. Students who violate the attendance policy will fail the course.

**Consecutive Days
Absence Policy**

A student who is withdrawn for failure to attend any classes within a consecutive ten calendar day period may be permitted to apply for readmission into the subsequent quarter.

Students who miss ten consecutive calendar days may be withdrawn from the University and will receive W's for all courses, if the withdrawal occurs before the end of the ninth week of the quarter, or WF's for all courses, if the withdrawal occurs after the end of the ninth week of the quarter. Students who have been withdrawn due to violation of the consecutive absence policy but are still in good academic standing will be able to return the following quarter through the readmissions process. Students who have been withdrawn and the withdrawal results in a violation of the satisfactory academic progress policy (SAPP) must follow the procedure for appealing academic termination. See Satisfactory Academic Progress section.

Academic Honesty:

The University does not tolerate plagiarism, cheating, copying or academic dishonesty in any form. Academic integrity policies apply to both the giver and receiver of information. Students who witness any act

of academic dishonesty should report the incident to a faculty member, their Chair, or to another member of the University staff or administration immediately.

Saving Work:

It is the student's responsibility to save his or her work. The student should save and verify multiple copies prior to leaving the classroom. The teacher is in no way responsible for work saved on the hard drives, nor is he or she required to give an extension on work improperly saved. Local and network drives at the University, including all computers in the labs, will be purged regularly and should never be used by students for long-term storage. These drives are available for student use during class and lab sessions, but all data will be deleted on a daily basis. Students are expected to backup all work. Loss, theft, and computer failure are not acceptable excuses for not saving work.

Reminders:

Students wishing to withdraw from a course must do so before week nine. Students wishing to drop a course without penalty must do so the first week of class.

Syllabus Changes:

Changes to the Syllabus are at the discretion of the instructor, and it is the student's responsibility to stay informed of these changes.

Resources:

Library

The Libraries on each campus are one of the most important resources available to students while attending the University. The Library supports learning and encourages intellectual curiosity among students and faculty. The Library staff works in cooperation with faculty to help students develop the ability to find, evaluate, and use information in order to become lifelong learners. To fulfill this mission, the Library develops and maintains a quality collection of books, periodicals, audiovisual materials, and online databases. The Library provides access to remote resources through Internet access and cooperative agreements with other libraries.

Wellness Program

The University provides confidential counseling free of charge to students in accordance with Florida Statute 491.0147 of the Board of Clinical Social Work, Marriage and Family, Therapy and Mental Health Counseling.

WEEKLY CLASS TOPICS AND ASSIGNMENTS

WEEK 1 1/12/2012

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| Overview: | Introduction of class. Go Over Syllabus |
| Weekly Objective: | Understanding the Maya Particles Environment |
| Lecture: | Creating Particles, Particle Attributes, Particle Types, Emitters, Fields Introduction, Dynamic Linkers |
| Practice: | Create 3 unique simulations using the knowledge at hand. |
| Reading Assignment and/or Homework: | Assignment 1: Begin Modeling Cityscape Fireworks Simulation Due at the beginning of class, week 3. |

WEEK 2 1/19/2012

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| Overview: | Fields, Per Particle Attributes, Rendering Particles |
| Weekly Objective: | Modifying particles for simulations |
| Lecture: | Fields Expanded, Modifying per particle attributes, Particle weights, Rendering Particles, Explanation of Parallax Effect. |
| Practice: | Using only fields, create two unique simulations with a minimum of 3 fields each. |
| Reading Assignment and/or Homework: | Begin creating the Fireworks simulation. Due next week at the Beginning of class |

WEEK 3 1/26/2012

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| Overview: | Sprites and Particle Emissions |
| Weekly Objective: | Advanced Particle emissions, creating particle smoke |
| Lecture: | Curve/Surface emissions, Introduction to Sprites, Creating sprite smoke. |
| Practice: | Create 3 separate simulations using surface/curve emissions and sprites |
| Reading Assignment and/or Homework: | MIDTERM: Due at the beginning of class week 6!!! Grab a picture of a waterfall and create a waterfall simulation to match the flow of the water in the picture. You will need to build some primitive geometry to resemble rocks in the scene to have particle collisions with. You should |

take the picture into Photoshop and either cut elements in the background off to add later or incorporate such elements

Final product should be rendered using the following criteria:

NTSC 720 x 480

Avi or Quicktime (H.264, Animation, Cinepak by Radius, Microsoft DV)

MUST have camera movement.

Sound encouraged but not necessary.

Handed in on a CD/DVD!

WEEK 4 **2/2/2012**

Overview: Collisions and Presets
Weekly Objective: Particle Collisions, Modifying preset simulations
Lecture: Sprites continued, Particle Collisions, Collision Events
Lecture: Modifying Preset Simulations.
Reading Assignment and/or Homework: Continue Working on Midterm

WEEK 5 **2/9/2012**

Overview: Disk Cache, Baking, Instancing
Weekly Objective: Optimizing Memory output for simulations
Lecture: Particle Disk Cache, Baking Simulations, Particle Flows, Particle Instancing, Individual Assessment.
Lab: Midterm lab time
Reading Assignment and/or Homework: Finish Midterm project due next week at the beginning of class.

WEEK 6 **2/16/2012**

Overview: Midterm Presentations
Weekly Objective: Midterm Presentations
Lecture: Rigid Body Dynamics, Introduction to Simulation Expressions
Practice: Catapult Simulation

Reading Assignment and/or Homework: Plan out your Rube Goldberg Machine

WEEK 7 **2/23/2012**

Overview: Soft Bodies, Goals, SW Particles
Weekly Objective: Understanding Soft Bodies
Lecture: Soft Body Dynamics, Particle Goals, Software Particles
Lab: Create a Soft Body simulation using a complex model
Reading Assignment and/or Homework: Rube Goldberg Machine Simulation
Due Week 9 at the beginning of class!

WEEK 8 **3/1/2012**

Overview: Particle Expressions, Cloth and Curve Dynamics
Weekly Objective: Modifying Particles with code
Lecture: Advanced Particle Expressions, Intro to Cloth and Fur Dynamics. Dynamic Curves and Hair.
Practice: Apply to an existing project Cloth dynamics or Dynamic curves
Reading Assignment and/or Homework: Continue work on Rube Goldberg Machine

WEEK 9 **3/8/2012**

Overview: Tips and Tricks to simulations. Rube Goldberg Machines are due.
Weekly Objective: Achieving the desired look on particles
Lecture: Icing on the cake, Discussion Expressions or Ramps
Lab: Continue Work on Final Projects
Reading Assignment and/or Homework: Continue Work on Final Projects

WEEK 10 **3/15/2012**

Overview: Assessments on Final Projects. Additional Lectures
Weekly Objective:

Lecture: Individual Assessment, Final Projects Lab
Lecture: Additional: Ocean Shaders, Fluid Simulations and Beyond
Reading Assignment and/or Homework: Finish Final Projects

WEEK 11 **3/22/2012**

Overview: Final presentations due at the beginning of class!
Weekly Objective: Hand in a copy of the final project including scenes, files, models and references on a CD/DVD! Failure to deliver a Disk with the required files will result on an failure to the class requisites.
Lecture: N/A
Lecture: N/A
Reading Assignment and/or Homework: N/A