

# Visual Communication & Design

## Recommended Reading

**VCIL  
2440**  
CRN: 15724

# 3D Simulation

**Spring 2010 - 14 Week Session**  
Wednesdays, 12:00pm - 3:10pm  
Room ELA 132

3 Credit: 2 Lecture / 2 Lab

### Course Description

Advanced technical and aesthetic issues concerning 3D modeling, 3D motion graphics and 3D animation using industry standard software. Course emphasizes static and dynamic animation strategies utilizing joints, inverse kinematics, dynamics, constraints, set driven keys, rigid body dynamics, effectors and node based animations to create product, instructional, character or environmental 3D simulations and animations. Applied projects for use in various visualization disciplines.

### Prerequisite(s):

VCIL-2040 3D Motion or concurrent enrollment; or departmental approval.

### Course Objectives:

Upon satisfactory completion of VCIL 2440 - 3D Simulation, the student should be able to perform the following outcomes and supporting objectives:

- A. Design a dynamic 3D simulation for instructional, information and aesthetic presentation.
  1. Describe various 3D simulation tools and strategies used by 3D visualization industry.
  2. Research animation and simulation principles and practices.
  3. Develop preproduction and planning strategies for 3D simulation.
  4. Design 3D models for use in 3D simulation application.
  5. Apply advanced/dynamic animation practices to move, rotate, scale and modify objects, lights and cameras to achieve simulation strategy.
  6. Create keyframe and dynamic animations of objects, lights and cameras.
  7. Render animation according to required project specifications for postproduction or final output.



CINEMA 4D 11 Workshop  
by Arndt von Koenigsmarck

Unity Game Development  
by Will Goldstone

<http://www.billsclass.com>

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Web: [www.billsclass.com](http://www.billsclass.com)

### Office Hours

#### Monday

4:30 pm - 5:30 pm

#### Tuesday

8:30 am - 12:00 pm  
2:00 pm - 3:00 pm

#### Wednesday

8:30 am - 9:00 am  
10:50 - 12:00 pm  
3:10 pm - 5:30 pm

#### Thursday

8:30 am - 9:00 am

# 3D Simulation

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## Spring 2010

### Grading

#### Project Checklist

- (m) Hair & Grass
- (m) Landscape
- (m) Physics

**Blood Cells** (Mograph)

**Solar System** (C4D & Unity)

**Environment Walkthrough**

#### Projects & Grading

(m) = **Micro Projects** (20 points)

Various minor projects and exercises will be required throughout the course of the semester. See Project Checklist.

Project 1: **Blood Cells** (25 points)

Students will develop an animation from a Blood Cell's eye view. Emphasis will be placed on using procedural animation techniques to quickly create complex animation. Special attention should be given to staging, timing and pace of the animation.

Project 2: **Solar System** (25 points)

Students will develop a solar system animation using procedural animation techniques. Emphasis should be placed on using dynamics, constraints and set driven keys to develop complex animations. We will also use some project assets in the Unity3D game engine to create a proof of concept of a simulated tour of the solar system.

Project 3: **Environmental Walkthrough** (30 points)

Students will model and texture an environment for implementation in Unity 3D. Environment can consist of a building, neighborhood, landscape, city or other appropriate environments. Alternatives include micro and macro environments for biological illustration, industrial application for product promotion or prototype and other simulated environments.

Extra Credit: **C4D Cafe Challenge** (10 points)

*All students are welcome to earn extra credit by participating in any C4D Café Challenge. Challenge entries must conform to the rules established by the contest moderators and should be submitted prior to the final session of class. You can find the challenge entry at the following URL: <http://www.c4dcafe.com/ipb/index.php?showforum=148>*

*“The question of whether computers can think is just like the question of whether submarines can swim..”*

#### Grading Scale

A: 90+    B: 80+    C: 70+    D: 60+    F: 59-

# Course Schedule

Feb 3	Session 1	Intro to Procedurals
Feb 10	Session 2	Intro to Dynamics
Feb 17	Session 3	Intro to Mograph
Feb 24	Session 4	<b>Blood Cells Due</b>
March 3	Session 5	Intro to Constraints, User Data & Set Driven Keys
<b>March 10</b>	Session 6	<b>Spring Break</b>
March 17	Session 7	Intro to Unity
March 24	Session 8	<i>Unity Production</i>
March 31	Session 9	<b>Solar System Due</b>
<b>April 7</b>	Session 10	Environment Project Kickoff
April 14	Session 11	Proof of Concept
April 21	Session 12	Production
April 28	Session 13	Production & Render
<b>May 5</b>	<b>Session 14</b>	<b>Final Presentation</b>

# Course & Department Requirements

Visual  
Communication  
& Design

**Email Requirements:** All students are required to check Tri-C student email on a regular basis or forward the Tri-C email to a personal account. Email is my preferred method of contact.

## Attendance and Participation:

In this course, attendance and participation are not directly factored into the grading criteria, however, excessive absences or tardiness will inevitably undermine the success of your performance in class. All presentations, lectures, demonstrations and discussions are unique and can not be replicated. You are responsible for making up any missed content independently. Late projects will be reduced by 10%.

## Assignments & Projects:

Assignments are required to be completed both in and out of class and with the assistance of supplemental Web material. Students are required to use the Technology Learning Center located on the third floor of the ESS building as needed. Assignments are due on time as described by the course schedule. Late assignments will be reduced by 10%. Assignments are to be completed and prepared for presentation prior to the start of the class on the day they are due.

## Classroom & Course Policies

Student will refrain from any disruptive behavior in the class and VC&D department areas.

When attending class, students should be prepared to be productive and engaged in classroom activities.

Students should refer to the College Student Handbook for policies governing this class. <http://www.tri-c.edu/studenthandbook/default.htm>. Copies of the College Student are available and can be obtained from the Office of Admissions and Records.

Students who require adaptive or special needs because of disability or medical condition, please contact the instructor, counselor or Access representative as soon as possible, so that appropriate arrangements can be made.

No food or drink will be permitted in class at any time.

The lab is a public space. Keep it clean, safe and free of distraction.

Do not access or copy files and folders that do not belong to you.

Check the College Catalog for last day to withdraw from this course. Students who fail to withdraw themselves from class by this date will result in a failing grade for the course. Withdrawing from a class must comply with appropriate protocol and procedures set forth by the college. A student's failure to attend classes shall not constitute an official withdrawal.

If you have any questions or concerns about the information in this syllabus, please contact the instructor.



Cuyahoga Community College

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