



## **CIDG 261**

3DS MAX CHARACTER ANIMATION & ADV. KEYFRAMING TECHNIQUES  
COURSE SYLLABUS ● FALL 2008  
SECTION NO. 21225 ● 3 UNITS

### **COMPUTER INTEGRATED DESIGN AND GRAPHICS DEPARTMENT VICTOR VALLEY COLLEGE**

- CLASS HOURS** ● MONDAY & WEDNESDAY 4:00 – 6:25 PM
- LOCATION** ● BUILDING 63-2 ROOM VE-2 LOWER CAMPUS
- INSTRUCTOR** ● STEVE NELLE (760) 245-4271 EXT 2653 EMAIL: nelles@vvc.edu
- PREREQUISITES** ● CIDG 160 AND CIDG 260
- TEXTBOOK** ● 3DS MAX ANIMATION WITH BIPED ISBN # 0-321-37572-6
- CALENDAR**
- |                          |                |
|--------------------------|----------------|
| ● INSTRUCTION BEGINS     | AUGUST 25      |
| LABOR DAY HOLIDAY        | SEPTEMBER 1    |
| VETERAN'S DAY HOLIDAY    | NOVEMBER 10    |
| THANKGIVING DAY HOLIDAYS | NOVEMBER 27–28 |
| SEMESTER ENDS            | DECEMBER 13    |
- WITHDRAWAL POLICY** ● LAST DAY TO WITHDRAW FROM A SEMESTER LENGTH CLASS AND RECEIVE A 'W' GRADE IS SEPTEMBER 17, 2008
- NOTE** ● PLEASE REMEMBER THAT IT IS THE STUDENT'S RESPONSIBILITY TO DROP A CLASS. THE WITHDRAWAL PROCESS IS NOT AUTOMATIC AND COULD RESULT IN THE STUDENT RECEIVING A COURSE GRADE OF F SHOULD THE PROCESS NOT BE COMPLETED CORRECTLY. IF YOU HAVE ANY QUESTIONS OR CONCERND, PLEASE TALK TO YOUR INSTRUCTOR.
- ATTENDANCE** ● REGULAR ATTENDANCE IS EXPECTED AMD CONSIDERED PART OF SUCCESSFULLY COMPLETINGTHE CLASS. EACH STUDENT IS REQUIRED TO SIGN IN ON A DESIGNATED ATTENDANCE SHEET IN ORDER TO BE COUNTED AS PRESENT FOR THAT DAY. EXCESSIVE ABSENSES FROM CLASS WILL BE CONSIDERED GROUNDS FOR THE STUDENT BEING DROPPED.

**GRADING POLICY**

- YOUR FINAL GRADE WILL BE BASED ON THE ACCUMULATED POINTS YOU EARN ON SEVEN (7) CLASSROOM TESTS AND/OR PROJECTS AND ONE (1) FINAL PROJECT. EACH ASSIGNMENT WILL BE WORTH ONE HUNDRED (100) POINTS. THE FINAL PROJECT WILL BE WORTH TWO HUNDRED (200) POINTS.

ALL ASSIGNMENTS WILL BE DUE ON THE DATE SCHEDULED. LATE PROJECTS WILL BE ACCEPTED UP TO TWO (2) WEEKS AFTER THEIR DUE DATE. THERE WILL BE AN AUTOMATIC TWENTY-FIVE (25) POINT DEDUCTION PENALTY FOR ANY PROJECT THAT IS TURNED IN LATE. PROJECTS WILL **NOT** BE ACCEPTED AFTER THE TWO WEEK TIME FRAME UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE WITH YOUR INSTRUCTOR. CLASSROOM TESTS WILL BE REQUIRED TO BE COMPLETED ON THE DAY THEY ARE ASSIGNED. COMPLETION OF EACH SOFTWARE-RELATED PROJECT WILL REQUIRE THE STUDENT TO PROPERLY TRANSFER THEIR COMPLETED WORK TO THE DIGITAL ANIMATION LAB'S NETWORK SERVER FOR EVALUATION. STUDENTS WILL BE INSTRUCTED AS TO THE SPECIFIC SERVER LOCATION (DIRECTORY) FOR THEIR COMPLETED WORK. SAVING TO THE PROPER LOCATION WILL BE CONSIDERED PART OF SUCCESSFULLY COMPLETING THE ASSIGNMENT.

EXTRA CREDIT ASSIGNMENTS MAY BE MADE AVAILABLE FOR STUDENTS INTERESTED IN IMPROVING THEIR OVERALL FINAL GRADE. ARRANGEMENTS MUST BE MADE BEFORE BEGINNING WORK ON SUCH PROJECTS. INSTRUCTOR APPROVAL AND ADEQUATE TIME FOR ASSIGNMENT COMPLETION ARE REQUIRED. IF INTERESTED, PLEASE DISCUSS THE POSSIBILITY OF COMPLETING AN EXTRA CREDIT ASSIGNMENT WITH YOUR INSTRUCTOR.

**FINAL GRADES WILL BE COMPUTED USING THE FOLLOWING POINT SYSTEM**

<u>Grade</u>	<u>Total Points</u>	<u>% of Total Points</u>
A	900 – 1000	100 – 90
B	800 – 899	89 – 80
C	650 – 799	79 – 65
D	600 – 649	64 – 60
F	599 or less	59 % or less

Course Description

Using one of the industry's premiere software applications, this course is designed to teach students the intermediate and advanced concepts and procedures required for creating quality three-dimensional animations. Students are introduced to a wide range of topics including advanced animation techniques including editing keyframes through Track View, animating with controllers and constraints, wiring parameters, and using hierarchies. Character animation techniques using both Character Studio and Bones are utilized to build skeletal systems for both characters and creatures. Students will also have the opportunity to explore relevant issues dealing with the pre-production process, traditional animation principles and industry trends and analysis.

## Course Objectives

Upon completion of this course the student will:

1. Possess an understanding of the intermediate and advanced elements of creating, manipulating and reviewing a complete three-dimensional animated model rendering.
2. Understand the process of creating and editing keyframed animation for the purpose of producing a wide range of motion styles.
3. Understand the procedures and techniques necessary for creating realistic character and creature movement within an animated scene.
4. Understand the various methodologies used to create realistic character facial movement, lip sync and sound matching in a three-dimensional computer generated environment.

## Required Materials

Other than course books, there are no required materials. It is recommended that students purchase blank CDs for backing up your work. Victor Valley College assumes no responsibility for lost or corrupted student work.

## Supplemental Materials

Students will be provided handouts throughout the course. The handouts are designed to bolster the student's understanding of course concepts and principles, in addition to adding important information relevant to the subjects covered.

## Lab Time

Victor Valley College's Digital Animation Lab located in the Computer Integrated Design and Graphic building (Room VE-2) will be open for students needing additional time to complete their assignments and/or wishing to further their knowledge and experience level. The times of operation will be provided during the first week of instruction.

### Lab Visitors

The use of Digital Animation Lab work stations is limited to students currently enrolled in one or more Digital Animation classes. We unfortunately must ask that visits from family and friends be restricted to individuals officially enrolled at Victor Valley College because of insurance and/or liability concerns. If you have any questions or special circumstances, please talk with your instructor.

### Food and Drink

The Digital Animation Lab instructors ask that NO food be brought into the classroom. Beverages are permitted but must be kept away from the work stations due to concerns pertaining to spillage and equipment damage. A table has been set up on the parking lot side of the classroom for any drinks that may be brought into the Lab.

### Cell Phones

If you happen to carry a cell phone, we ask that you turn down the volume of the ringing device as consideration to others. Phones should preferably be turned to vibrate mode if possible. If your phone does ring, we ask that you take your call outside to avoid disrupting class.

### Plagiarism

Cheating is a serious offense, and will be dealt with accordingly. Any student caught plagiarizing either a written exam or hands on project, risks being dropped from class and receiving an F for a final grade.

### Importance of Traditional Art Training

In as much as one doesn't have to be an artist to be a successful computer animator, having a foundation built on traditional art concepts and principles is definitely of value.

If you are serious about the field of Animation, we would strongly recommend that you consider taking a few Art courses while at VVC. Classes in drawing and composition, life drawing, color and design, and sculpture would all be outstanding choices to improve your sense of design and proportion. The Digital Animation staff of instructors would be happy to answer any questions you might have as to what specific Art courses would be most appropriate to your goals and interests.

### Suggestions Additional Readings

Animation: From Script to Screen  
Shamus Culhane  
ISBN: 0312050526

The Illusion of Life  
Frank Thomas & Ollie Johnston  
ISBN: 0786860707

The Animator's Survival Kit  
Richard Williams  
ISBN: 0571202284

Cartoon Animation  
Preston Blair  
ISBN: 1560100842

Model, Rig, Animate with 3ds Max  
Michele Bousquet  
ISBN: 0970683081

Digital Character Animation 3  
George Maestri  
ISBN: 0321376005

Storytelling Through Animation  
Mike Wellins  
ISBN: 1584503947

Digital Cinematography and Directing  
Dan Ablan  
ISBN: 0735712581

### Suggestions Additional Readings (cont.)

Film Directing: Shot by Shot  
Steven Katz  
ISBN: 0914188108

Character Animation in Depth  
Doug Kelly  
ISBN: 1566047714

Exploring Storyboarding  
Wendy Tumminello  
ISBN: 1401827152

Your Career in Animation: How to Survive and Thrive  
David Levy  
ISBN:1581154453

Producing Animation  
Catherine Winder & Zahra Dowlotabadi  
ISBN: 0240804120

## Course Outline

Note: Course work and subject material may be presented in a different order than listed.

- I. Traditional Animation Principles and Practices
  - A. The Production Process -- From Script to Screen
    - 1. Developing a Concept
    - 2. Telling a Good Story
    - 3. Scene Aesthetics -- Color, Design and Composition
    - 4. Production Workflow
    - 5. Output Issues
  - B. Principles of Animation
    - 1. Anticipation
    - 2. Squash and Stretch
    - 3. Overlapping Action
    - 4. Follow-Through

B. Principles of Animation (cont.)

5. Staging
6. Exaggeration
7. Secondary Motion
8. Weight & Timing
9. Ease In / Ease Out
10. Arcing Motion
11. Symmetry

Test: The Principles of Animation

C. Storyboards

1. The Use of Storyboards
2. The Importance of Storyboards
3. Creating Storyboards
4. Key Elements to Include in a Storyboard

TEAM PROJECT: CREATING A storyboard

II. Industry Trends and Analysis

- A. Introduction to Computer Generated Imagery
- B. Applications and Uses
- C. Where the Jobs Are
- D. What Employers Look For
- E. Demo Reel Suggestions

Test: animation critique

### III. Advanced Animation Techniques

#### A. Keyframing Overview

1. Creating Keyframes – Auto Key vs. Set Key
2. Timeline Overview
3. Time Configuration
4. Frames per Second (fps) Considerations
5. Display Issues Trajectories, Ghosting and Show Key Times

#### B. Track View

1. The Curve Editor
2. Tangency Types
3. Editing Trajectories/Tangencies
4. The Dope Sheet
5. Editing Keyframes
6. Editing Time Moving and Scaling
7. Edit Key Mode
8. Edit Range Mode
9. Out-of-Range Parameters

#### C. Special Animation Techniques

1. Path Animation
2. Path Deform
3. Patch Deform
4. Controller Types
  - a. Path Constraint
  - b. Look At
  - c. Noise
  - d. Attachment
  - e. Visibility
5. Controlling Visibility
6. Displacement

#### D. Hierarchy and Linking

1. Creating a Hierarchy
2. Linking and Forward Kinematics
3. Unlinking
4. Link Constraint
5. Pivots Points and Working Pivot Mode
6. Animating Pivot Points / Multiple Pivot Points
7. Using Dummy Objects
8. Understanding Inverse Kinematics

PROJECT: COMPANY LOGO DESIGN

### III. Character Animation

- A. Character Posing, Gestures and Mannerisms
- B. Acting Out Emotions and Intentions
- C. Basic Character and Creature Skeleton Setup
  - 1. Non-Organic Model Rigging
  - 2. Organic Model Rigging
- D. Advanced Character and Creature Setup
- E. Walking and Locomotion

### IV. Character Studio

- A. Introduction to Biped
- B. Setting Biped Parameters
- C. Human and Non-Human Biped
- D. Fitting the Biped to the Mesh
- E. The Physique Modifier
- E. Adjusting Envelopes & Vertex Weightings
- F. Linking Objects to the Biped
- G. Bulge Angle
- H. Footstep Animation
- I. Editing Footsteps
- J. Freeform Animation
- K. IK Blend
- L. Planted and Free Keys
- M. Combining Motion Styles

PROJECT: CHARACTER STUDIO USING Biped  
and Physique

PROJECT: CHARACTER STUDIO USING Planted  
and Free Keys

## V. Bones

- A. Introduction to Bones
- B. Bone Creation and Parameters
- C. Chains and Hierarchies
- D. Character Rigging
- E. The Skin Modifier
- F. The Skin Morph Modifier
- G. Weighting Bones
- H. Reaction Manager
- I. Custom Attributes

PROJECT: Creating and Editing bones

## VI. Facial Animation and Lip Sync Techniques

- A. Facial Gestures and Dialogue
- B. Phonemes and Basic Mouth Shapes
- C. Animating Vertices
- D. Animating with FFDs
- E. Animating with the XForm Modifier
- F. The Morpher Modifier
- G. The Morpher Material

PROJECT: LIP SYNCING

## IV. Animation Techniques

- A. Animating with Multiple Modifiers
- B. Object Space Modifiers
- C. World Space Modifiers
- D. Atmospheres and Environment Animation
- E. Camera Animation
  - 1. Depth of Field
  - 2. Motion Blur

PROJECT: Final