



Queensland College of Art

3104GFS 3D Max Character Animation 2

COURSE OUTLINE

IDENTIFYING INFORMATION

Course Code:	3104GFS
Postgraduate Offering:	7078GFS
Course Title:	3DMax Character Animation 2
Category Discipline:	100399
Faculty:	Queensland College of Art
Program/s:	Any QCA program
Status:	Elective course
CP Value:	10CP
Prerequisites:	nil
Year and Semester:	Year 3, semester 1
Course Convenor:	John Eyley Ext: 53174 e-mail: j.eyley@griffith.edu.au
Teaching Team:	Louise Harvey ph: 0438886981 e-mail: l.harvey@griffith.edu.au

Objectives:

Students successfully completing this course will:

Use a 3D animation software program (3DS Max®) to animate 3D characters.

BRIEF DESCRIPTION:

This course is designed to continue on from Computer Imaging for Animators II, and will introduce students to 3D computer animation concepts and tools. These concepts are reinforced and applied through the completion of a number of practical projects and exercises. The focus is on utilising traditional animation principles in the CGI animation environment

Generic Skills:

This course will help the graduate to develop these generic skills:

- problem Solving
- information Technology
- independent lifelong learning

WEEK 1 – Intro to 3D animation: what can you animate in 3D? Concepts of in-betweening and interpolation are introduced. Tools of the Trade: track view, playback controls settings, output formats and options, animating transforms, working with keys, controlling motion with f-curves. These concepts will be reinforced via a hands-on exercise “bouncing ball”, using a Stretch modifier to maintain volume. This exercise will also utilise animation principles of timing and anticipation, and will demonstrate how trajectory display works.

WEEK 2 – Animating a character: animation controls, importance of maintaining the character’s centre of balance. Preparation of a character for animation – collapsing the modifier stack, Mesh Smooth and Skin modifiers, understanding and animating the system of bones, expressions, and helpers that make up the character rig.

WEEK 3 – Animating a character: Students begin animating a supplied, rigged character to supplied video footage. Concepts to be presented in this lesson include methods for interpreting and determining animation timing, including use of live-action footage and x-sheets. Recommended steps in preparing for an animated sequence are discussed. A “kick the can” exercise is utilised by the students to reinforce these concepts.

WEEK 4 – Refining the animation: concepts of posing and staging, and use of arcs is examined. Students are then to commence work on a freeform animation exercise, utilising either a character they have made in Computer Imaging for Animators 2, or a character provided by the teacher. Their ideas and characters for this project are to be reviewed by the teacher to determine their appropriateness, and to identify any special requirements for their individual works.

WEEK 5 – Approaches to animation: Students learn how to apply traditional animation principles in a 3D context. Animation strategies such as layering and pose-to-pose and manipulation of function curves and control of interpolation are examined and compared for effectiveness. Lead and Follow, secondary animation and observing the forces that affect the movement of a character.

WEEK 6 – Freeform Animation project: Interacting with other objects – using link constraints to pick up objects. Acting for CGI animators – students consider basic acting concepts and how they can be utilised simply in the CGI environment. Students continue work on their free-form animation projects.

WEEK 7 – Morph Targets: introduction to Morph Targets and their use in lip sync and facial animation. Facial animation concepts and tips: students learn important facial animation techniques that will help their animated characters to effectively communicate to their intended audience. Lip sync methods of both traditional phonemes and new Visime® techniques are demonstrated, discussed and evaluated. Students learn how to import and manipulate a sound file into the Max timeline for use in breaking down a dialog track.

WEEK 8 – Continue work on Morph Targets. Recommended mouth shapes for 3D lip-sync, and the use of bones in the head and jaw for some mouth shapes are explained and practiced. Use of the x-sheet for dialog breakdown is explained. Students commence work on a lip-sync exercise which is an assessable item due in week 13.

WEEK 9 – Animating other elements in Max: students are guided in the animation of cameras (including camera shake), lights, and animating to a path. A series of short exercises on incorporating these topics are to be completed in the lesson.

WEEK 10 – introduction to particle systems and dynamics. Students are to complete a short exercise involving the animation of particles such as rain.

WEEK 11 – Rendering effects: students are instructed in the use of 3DSMax rendering effects, including motion blur, film grain, and depth of field.

WEEK 12 – lip-sync animation exercise: students are to continue work on their lip-sync animation exercise.

WEEK 13 – Students will complete and submit their lip-sync animation exercise for assessment.

Organisation and Teaching Methods

This course will be presented as a series of weekly demonstrations, short lectures and practical exercises. The lecturer will demonstrate software tools and procedures, discuss various animation principles and guide students in the completion of a number of practical exercises designed to reinforce the tools and ideas presented. In order to achieve the course objectives, students are required to attend each weekly demonstration. It is expected that students will need access to computers outside of scheduled class times in order to complete their assessments.

Assessment

Assessment for this course will take the form of two practical projects:

1. Character Free Form Animation (50%). Due date week 7.

Through the completion of this assessment, students will demonstrate their ability to animate a 3D character performing a simple movement such as a walking into a scene and kicking a can, pulling out a chair and sitting down, performing a short martial arts movement, dance step, talking and making gestures, etc. The character must perform the desired movement through the use of both forward and inverse kinematics. The quality of the animation is an important component of this assessment, the goal being to achieve smooth, naturalistic motion, which should be achieved through the use of arcs, ease-in, ease-out and other appropriate traditional animation principles. The duration of the movement should be at least 15 seconds, not including any extra time required for titles, long camera pans etc. The character will be supplied by the lecturer.

Assessment Criteria is as follows:

1. Animation – effective use of forward and inverse kinematics (50%)
2. Animation timing – use of function curves to control the timing and interpolation of the movement (50%)

Results for each of these criteria will be marked according to these levels of competence:

2. Lip Sync and Facial Animation (50%). Due date week 13.

Through the completion of this assessment item, students will demonstrate their understanding of the basic facial expression poses of the face and the phoneme shapes of human speech and their application in a 3D animation environment. Using the tools and principles presented in the lectures, students must animate the provided character talking in sync with a voice track, using the morpher modifier to create the necessary mouth shapes and facial expressions. The character must clearly communicate both its dialog and emotions to the viewer. The minimum length for this exercise is 15 seconds. Students must submit the following items for assessment: 1. a windows avi (768 x 576) 25fps file of the animation, and 2. the .max file.

Assessment Criteria is as follows:

demonstration of understanding of morpher modifier, common facial expressions and mouth phonemes (30%)

Timing – successful synching of animation with sound track, clear communication of emotion and dialogue to viewer (30%)

Compliance with the suggested tips and techniques for facial and lip-sync animation. (30%)

Output – render at desired frame rate and resolution (10%)

Results for each of these criteria will be marked according to these levels of competence:

- 10 – outstanding
- 9 – excellent
- 8 – very good
- 7 – good
- 6 – sound
- 5 – pass

Texts and Supporting Materials:

Bonney, S. & Jones, A. 2000, *3D Studio Max3: Professional Animation*, New Riders, Indianapolis.

Hooks, E. & Bird, B. 2002, *Acting for Animators*, Heinemann Publishing, New Hampshire. (see also <http://www.actingforanimators.com/>)

Lee, K. 2001, *Inside 3DS max 4*, New Riders, Indianapolis.

Maestri, G. 1996, *[Digital] Character Animation*, New Riders, Indianapolis.

Maestri, G. 1999, *[Digital] Character Animation2: Essential Techniques*, New Riders, Indianapolis.

Williams, R. 2001, *The Animator's Survival Kit*, Faber, London.

White, T. 1988, *The Animator's Workbook*, Watson-Guptill, New York.

Scope of Course Evaluation

The course will be evaluated using the resources developed by the Griffith Institute of Higher Learning. The dimensions to be evaluated are:

- Design of the course
- Teaching and management
- Learning and teacher-learner relationships

Administration

Students are expected to attend the weekly classes. Students with special requirements or interests should see the course convenor for assistance.

Generic statement of difference for Undergraduate courses studied at Postgraduate level.

At the postgraduate level students are expected to understand, practice and develop three fundamental but linked activities as integral for independent research work – action, research, reflection. This is developed by requesting that students write a literature review of key texts for the topic of study, produce a visual diary and complete the required assessment for the undergraduate version of the course.

Assessment

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|---|---------------|
| Undergraduate version assessment | weighting 70% |
| Literature Review/Contextualisation of Practice and Documentation of practice | weighting 30% |

Literature Review/Contextualisation of Practice 15%

Students are to write a 1000 – 1500 word review of select texts (at least 2) listed in the course handout, relevant to their interests and on a specified topic or studio procedure. To demonstrate your ability to conceptualise arguments and propositions it is expected that you will use concept maps.

Assessment criteria

Ability to analyse and summarise written material	Weighting 2.5
Ability to use library resources to find expert comment related to the topic of study	Weighting 2.5
Ability to conceptualise arguments and propositions	Weighting 3
Ability to employ an academic referencing system	Weighting 2

Documentation of Practice 15%

Documentation of practice may take different forms appropriate to the student's area of study but should include a concept maps of ideas and related discourse

Eg: -visual diary or video or CD Rom, notes of working processes of software/interface/problems.

A diary is to contain the following: concept maps of ideas explored in studio practice and the literature surveys of the field of practice, critical responses to the writings about the field of practice both personal and by experts, suggestions about gaps in the field of practice, comments on working processes, reflection on how skills gained will further their stated Individual Project.

Only one diary per student is necessary, although, it is required that different subject areas are indicated.

A combination of visual diary and other documentation strategies will be accepted.

Assessment criteria

Ability to employ concept maps as a research strategy	Weighting 4
Ability to refine and focus thoughts and research investigations	Weighting 3
Ability to devise documentation strategies	Weighting 3

Assessment Rationale

The Literature Review will broaden the students understanding of and debates in the field of practice. The diary will complement studio practice by being a record of how the student interacted with the course material and the constructions (visual and conceptual) and propositions which arose as a consequence.