Mission Statement:
Our mission is to serve as a leading center of Christian thought and action providing an excellent education from a biblical perspective and global context in pivotal professions to equip Christian leaders to change the world.

**COURSE SYLLABUS**

SCHOOL OF COMMUNICATION & THE ARTS
DEPARTMENT OF CINEMA- TELEVISION - UNDERGRADUATE

ANIM 213
Character Rigging and Animation
**SPRING 2011**
Tuesdays 1:30-4:30 pm

**PROFESSOR: DAVID Xu**

E-mail: dxu@regent.edu

**OFFICE LOCATION: COM 253**

Please initial here and return to instructor ________________ date___________

Please Print Name __________________________________________________________

All students are required to read and have a thorough understanding of the syllabus. Any questions or concerns need to be addressed to the instructor.
COURSE DESCRIPTION

Students gain the skills required to rig and animate characters in Maya. A fully planned, animated, rendered, and edited 60-second animation is required. Students are required to have an approved laptop with Autodesk Maya software, Adobe Photoshop, Premiere and After Effects. Pre-requisite: ANIM 203 Intro to 3D

RATIONALE/COURSE OVERVIEW

Integration of Faith & Learning
There are many scriptures on which this class is based. This class, in attempting to teach the student the “business” of entertainment, does so, based on the biblical principles of honesty, integrity, professionalism, responsibility, humility, and servant leadership. As the Lord directs us to let our yes be yes and our no be no, this class intends to forge a spirit of integrity and honesty in business relationships, as a cornerstone to success in the industry. Students are expected to present themselves in accordance with these principles.

Bachelor of Arts in Animation Program Goals:
1. Relevant knowledge of the ways in which Christian principles are evidenced in the practice of their art.
2. Ability to conceptualize the way meaning is structured and perceived in animation.
3. Understanding of the techniques and practices of animation production including conceptualization, modeling & construction, texturing, animation, digital cinematography, and post-production and the use of relevant tools for each of these stages.
4. Proficiency in the production of animation.

Bachelor of Arts in Animation Program Learning Outcomes:
Students will demonstrate:
1. Articulation of their Christian Worldview both written & visual.
2. Understanding of the historical/critical role of animation in our society and globally.
3. Understanding of animation story construction & character development both written & visual.
4. Understanding conceptualization as it applies to animation production both written & visual.
5. Proficiency in Photoshop
6. Proficiency in editing and compositing as it relates to animation.
7. Proficiency in traditional drawing skills

ANIMATION 213 OUTCOMES

1. Complete two FK/IK Rig and Maya Muscle System for both Animal and man characters.
2. Incorporate the twelve principles of animation into their projects.
3. Create blend shapes & lip sync animation.
4. Complete two major character animation projects.

**COURSE MATERIALS**

**REQUIRED TEXTBOOKS & MATERIALS:**

![Mastering Autodesk Maya 2011 by Eric Keller Paperback](image)


**Required Software**

*Autodesk Maya 2011*

Adobe Photoshop Extended CS4 or higher

Available from

- [www.studica.com](http://www.studica.com)
- [www.journeyed.com](http://www.journeyed.com)

or

- [www.academicsuperstore.com](http://www.academicsuperstore.com)

You will also need an editing program. Adobe Premiere, Final Cut Pro and Avid are the program taught at Regent. You will also need a Compositing Program. After Effects is included in the CS4 Production Bundle.

> *It is recommended to have a digital camera with a “movie mode” and/or camcorder for motion/visual reference and texture creation*

**Recommended Resources:**

- [www.highend3d.com](http://www.highend3d.com)
- [www.thegnomonworkshop.com](http://www.thegnomonworkshop.com)
- [www.digitaltutors.com](http://www.digitaltutors.com)
- [www.keithlango.com](http://www.keithlango.com)
- [www.3dtotal.com](http://www.3dtotal.com)
- [www.3dcafe.com](http://www.3dcafe.com)
- [www.awn.com](http://www.awn.com)
- [www.animationmeat.com](http://www.animationmeat.com)
- [www.cgchannel.com](http://www.cgchannel.com)
- [www.sketchcrawl.com](http://www.sketchcrawl.com)
- [http://cgtextures.com/](http://cgtextures.com/)
- [http://sketchcrawl.com/](http://sketchcrawl.com/)
- [www.conceptart.org](http://www.conceptart.org)

*Note: Learning to draw well AND quickly takes work. Lots of work. But it should also be fun.*

*This class is 3 hours with a short break in the middle with no homework outside of the class, but 3 hours a week may not be enough to get you really good at drawing. Consider how dedicated you are to your goals, and decide for yourself.*
Students are required to have a laptop powerful enough to run Maya. For details see:
http://usa.autodesk.com/adsk/servlet/index?siteID=123112&id=7639522
(*A laptop with a dedicated (not shared or integrated) graphics card is recommended. Often times, these types of laptops are referred to as “gaming laptops” or “desktop replacements.” These laptops are often larger and heavier due to their increased power and performance)

COURSE REQUIREMENTS AND ASSIGNMENTS

A  Week  2 Assignment
   1. Pick the best one of your Brainstorming  1- minute animation ideas for your Midterm & Final project and show next class
   2. Begin working on Storyboard (due week 6) (10 %)  
   3. Practice class content and create 1 work using Using Joints and Constraints, Inverse Kinematics Techniques (show next class) (2 %)

B  Week  3 Assignment
   1. Continually work on Storyboard (due week 6)
   2. Practice class content and create 1 work using Creating and Organizing Joint Hierarchies Techniques (show next class) (2 %)

C  Week  4 Assignment
   1. Continually work on Storyboard
   2. Midterm project Assignments (see assignment sheet)
   3. Practice class content and create 1 work using Ik Legs, FK Blending, Rotate Plane Solvers, Creating Custom Attributes, Spline IK Techniques (show next class) (2 %)

D  Week  5 Assignment
   1. Practice class content and create 1 work Full Body Inverse Kinematics, Skinning Geometry, Painting Skinning Weights, Editing Skinning Weights
in the Component Editor, Copying & Mirroring Skin Weights Techniques
(show next class) (2 %)

2.

tart work on your midterm project

E Week 6 Assignment
1. Practice class content and create 1 work using Maya Muscle System Technique (show next class) (2 %)
2. Continually work on your midterm project

F Midterm Project – Due wk 8 (18 %)

G Week 9 Assignment
1. Practice class content and create 1 work using Hum being Rigging I Technique (show next class) (2 %)
2. Continually work on your Final project (see assignment sheet)

H Week 11 Assignment
1. Practice class content and create 1 work using Hum being Rigging II Technique (show next class) (2 %)
2. Continually work on your Final project

I Week 12 Assignment
1. Practice class content and create 1 small animation using Animating Blend Shape Sequentially Technique, (show next class) (2 %)
2. Continually work on your Final project

J Week 13 Assignment
1. Practice class content and create 1 work using Character Animation Technique II Technique (show next class) (2 %)

K Final Project – Due Wk 15 (34 %)

EVALUATION AND GRADING

A. Weight
Assignment Storyboard Animatic

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<td>Final Film</td>
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B. Scale

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CLASS SCHEDULE:

Week 1 Syllabus introduction,

Discuss Storyboard, Midterm & Final project
Week 2 Lecture:  *Skeleton Techniques*

*Using Joints and Constraints, Inverse Kinematics*

**Activity:** Class discussion on animation ideas for Midterm & Final project.

**Workshop:** Individually help student to solve problems

**Assignments:**
1. Pick the best one of your Brainstorming 1-minute animation ideas for your Midterm & Final project and show next class
2. Begin working on Storyboard (due week 6)
3. Practice class content and create 1 work using *Using Joints and Constraints, Inverse Kinematics Techniques* (show next class) (2 %)

Week 3 Lecture:  *Understanding Rigging & Creating and Organizing Joint Hierarchies*

**Activity:** Class discussion on 1-minute animation ideas for Midterm & Final project.

**Workshop:** Individually help student to solve problems

**Assignments:**
1. Continually work on Storyboard (due week 6)
2. Practice class content and create 1 work using *Creating and Organizing Joint Hierarchies Techniques* (show next class) (2 %)

Week 4 Lecture  
*Animal Rigging I*

*(IK Legs, FK Blending, Rotate Plane Solvers, Creating Custom Attributes, Spline IK)*

**Activity:** Students Present last assignment

Students Present one of the best animation ideas for Mid & Final project.

**Workshop:** Individually help student to solve problem

**Assignments:**
1. Continually work on Storyboard
2. Midterm project Assignments (see assignment sheet)

3. Practice class content and create 1 work using *Ik Legs, FK Blending, Rotate Plane Solvers, Creating Custom Attributes, Spline IK Techniques* (show next class) (2 %)

**Week 5 Lecture**  
*Animal Rigging II*
*(Full Body Inverse Kinematics, Skinning Geometry, Painting Skinning Weights, Editing Skinning Weights in the Component Editor, Copying & Mirroring Skin Weights)*

**Activity:** Students Present last assignment  
Students Present Storyboard for Mid & Final project (10%)

**Workshop:** Individually help student to solve problem

**Assignments:**

1. Practice class content and create 1 work *Full Body Inverse Kinematics, Skinning Geometry, Painting Skinning Weights, Editing Skinning Weights in the Component Editor, Copying & Mirroring Skin Weights Techniques* (show next class) (2 %)

2. Start work on your midterm project

**Week 6 Lecture:**  
*Maya Muscle System*
*(Understanding the Maya Muscle System, Using Capsules, Creating a Muscle Using Muscle Builder, Editing Muscle Parameters, Converting the Smooth Skin to a Muscle System, Sliding Weights,)*

**Activity:** Students Present last assignment, Storyboard (due 10%)

**Workshop:** Individually help student to solve problem

**Assignments:**
1. Practice class content and create 1 work using *Maya Muscle System* Technique (show next class) (2 %)

2. Continually work on your midterm project

**Week 7 Lecture:** **Workshop**

**Activity:** Students Present last Assignment

**Workshop:** Individually help student to solve problem

**Assignments:** Continually work on your midterm project

**Week 8 Lecture:** Midterm (18 %)

**Activity:** Students Present Midterm work

**Workshop:** Individually help student to solve problem

**Assignments:** Continually work on Final project

**Week 9 Lecture:** *Hum being Rigging I*

*(How to organize the rig’s hierarchy, How to create selection sets, How to create visibility layers, How to strategically place attributes)*

**Activity:**

**Workshop:** Individually help student to solve problem

**Assignments:**

1. Practice class content and create 1 work using *Hum being Rigging I* Technique (show next class) (2 %)

2. Continually work on your Final project

**Week 10 Workshop:**

**Activity:** Students Present last Assignments

Student Present Final project progress

**Workshop:** Individually help student to solve problem
Assignments:
Continually work on your final project

Week 11 Lecture: *Hum being Rigging II*

*(How to use aim constraints, How to use the jiggle deformer,*
*How to lock and hide nodes and attributes, How to create a smooth node and* 
hook it to the rig, *How to create a Character set for keyframing)*

**Workshop** Individually help student to solve problems

**Activity:** Students Present project progress

**Assignments:**
1. Practice class content and create 1 work using *Hum being Rigging II Technique* (show next class) (2 %)
2. Continually work on Final project

Week 12 Lecture: *Character Animation Technique I*

*(How to reference a scene, How to use a Character set, How to animate the Character's legs and arms)*

**Activity:** Students Present last Assignments

Students Present Final project progress

**Workshop:** Individually help student to solve problem

**Assignments:**
1. Practice class content and create 1 work using *Character Animation Technique I Technique* (show next class) (2 %)
2. Continually work with Final project

Week 13 Lecture: *Character Animation Technique II*

*(How to animate the twist of the pelvis, shoulders, and head*
How to create a cycle using the Graph Editor
How to bake animation channels, How to create a Trax clip, How to export a Trax clip

**Activity:** Students Present last Assignments
Students Present final project progress

**Workshop:** Individually help students to solve problem

**Assignments:**

1. Practice class content and create 1 work using *Character Animation Technique II Technique* (show next class) (2 %)

2. Continually work with Final project

**Week 14 Workshop:** Individually help student to solve problems on final project

**Activity:** Students Present last Assignments
Students Present final project progress

**Assignments:** Continually work on Final project

**Week 15 final** Students Present Complete Final project (34%)

Students must turn in their projects at the beginning of class (as students arrive – please have your Film burned to a CD or on a thumb drive that the instructor can borrow to transfer the files). Students will present their Short Film, from conception to completion. Critiques of their work will be given and student discussion will be encouraged. Due to limitations within the render farm for class, all animation may not have access to the render farm. Students are instructed to include Playblast of Final film complete with sound, Still images of fully realized shots and the best scene (students choice) fully realized and rendered on the students machine. (Be advised that render time COULD be a full day or more on your system)

Breakdown of elements for the grading of the Final Project is as follows:

- Student’s Presentation and Interaction: 10%
- Adherence to Storyboard Animatic: 10%
- Modeling, Texturing & Rendering: 20%
- Rigging & Animation: 25%
- Dynamics: 20%
- Overall Creativity and Originality: 15%
UNIVERSITY ACADEMIC HONOR CODE

Students are on their honor to complete assignments with honesty and integrity. Academic dishonesty involves intentionally or unintentionally stealing the intellectual property of others. Students are expected to be familiar with the university’s policy on academic integrity found in both the University Student Handbook and School of Undergraduate Studies Catalog (http://www.regent.edu/general/catalog/) and to follow it. As an academic and Christian community, Regent University takes seriously the call for integrity and penalizes breaches of academic integrity.

Students should be aware that submitted papers may be checked using Safeassign (Blackboard’s plagiarism detection feature. This feature will determine the percentage of the submitted paper that matches other sources and will generate a report. Scores below 15% include quotes and few common phrases or blocks of text that match other documents, these papers indicate no evidence of the possibility of plagiarism. Scores between 15% and 40% include extensive quoted or paraphrased material or may include plagiarism and will require further review. Scores over 40% indicate a high probability the text in the paper was copied from other sources and should be reviewed for plagiarism. The professor or instructor will contact the student if plagiarism is a concern.