3D DIGITAL ANIMATION TECHNIQUES (3DAT)

COURSE NUMBER: DIG3305C	**CREDIT HOURS:** 3.0
SEMESTER/YEAR: FALL 2017	**CLASS LOCATION:** OORC, NORMAN (NRG) 0120
	CLASS MEETING TIME(S): M 3:00 – 4:55 / W 4:05 – 4:55
INSTRUCTOR: Aaron Karlson	**OFFICE LOCATION/HOURS:** TH 4:00-4:50 NRG 116
	CONTACT EMAIL: CONTACT VIA CANVAS INBOX
CONTACT PHONE: (352) 294-2000	**COURSE WEBSITE:** http://elearning.ufl.edu

COURSE DESCRIPTION

Practical techniques for the implementation of three-dimensional digital animations. Basic principles of 3D design workflow in modeling, texturing, lighting, rendering and animation. Understanding basic object and bipedal motion and key-framing using both industry-standard and open-source tools to perform a frame-by-frame study of traditional and contemporary motion picture animation.

PREREQUISITE KNOWLEDGE AND SKILLS

DAS major

PURPOSE OF COURSE

To familiarize students with the methodology and software used in creating 3D digital art. Students will gain practical experience through modeling and texturing simple geometry, animating using key frames, and finalizing projects through lighting and rendering. This course is intended to introduce students to 3D workflow and practices used in the film industry.

COURSE GOALS AND/OR OBJECTIVES: By the end of this course, students will be able to:

1. Understand the general work-flow for creating 3D assets for film or games.
2. Implement image sequences and post production processes for 3D animation.
3. Apply materials that control 3D surface appearance.
4. Effectively create original polygon objects, simple characters and digital environments using Maya.
5. Create/manage key frame animation for films and for video games.

COURSE SCHEDULE:

This course incorporates lecture, discussion, quizzes, and group learning projects. Individual assignments will be explained in detail as the course progresses. The FINAL EXAM TIME SCHEDULED FOR THIS COURSE will be announced in advance of each semester by the University of Florida Registrar's Office at http://www.registrar.ufl.edu/soc/

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Week	Topic	Assignments/Quizzes
1	Overview of course and objectives Overview of materials and software ● History of animation ● Foundational terms Introduction to Maya ● Maya 2017 GUI ● Navigating the viewport ● Primitive objects ● Basic 3D transforms ● Creating basic key frames	Review the class lecture Be familiar with using the Maya interface and navigating in 3D space Assignment 1: Primitives in 3D
2	Review: Basics of Maya Further introduction to Maya GUI ● Introduction to the production pipeline ● Setting up project folders ● Navigating orthographic and perspective views/ using keyboard shortcuts ● Scene organization utilizing the Outliner ● Components of polygons ● Soft selection	Assignment 2: Primitive Landscape **DUE** Assignment 1: Primitives in 3D
3	Review: Basics of Maya Part II Modeling in Maya ● Smooth mesh preview ● Parenting ● Mesh tools ● Modeling workflow ● Creating image planes	Assign 3: Modeling with image planes **DUE** Assignment 2: Primitive Landscape
4	Review: Modeling in Maya Materials and Texturing I ● Review project folders ● Materials overview ● Unwrapping UVs ● UV tools	Assignment 4: Texturing and UV mapping part I **DUE** Assignment 3: Modeling with image planes
5	Review: Unwrapping UVs Materials and Texturing II ● Exporting UVs ● Painting in Photoshop ● Creating seamless textures ● More UV Tools ● Cutting & Sewing UV edges	Assignment 5: Texturing and UV mapping part II **DUE** Assignment 4: Texturing and UV mapping part I
6	Review: Materials and Texturing Setting up a render in Maya	Assignment 6: Lighting and Rendering

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	● 3 Point Lighting ● Linear Workflow ● Color Management ● Applying a bump map ● Rendering with Arnold	**DUE** Assignment 4: Texturing and UV mapping part II
7	Review: Lighting and Rendering ● Maya to After Effects workflow ● NURBS curves in Animation ● Motion paths & non-linear deformers ● Utilizing the Graph Editor	Assignment 7: Solar System Animation **DUE** Assignment 6: Lighting and Rendering
8	The 12 Principles of Animation Animating a bouncing ball in Maya ● Animation techniques for realistic physical motion ● Basic rig breakdown ● Setting up 3D environments	Assignment 8: Bouncing Ball in 3D Final Project Proposal **DUE** Assignment 7: Solar System Final Project Proposal
9	Review: Bouncing Ball Character Animation Part I ● Pre-rigged character overview ● Walk cycle (lower body legs) ● Advanced character controls ● Graph editor tangents ● File referencing	Assignment 9: Character Walk Cycle (Legs and lower body) Quiz: The 12 Principles of Animation **DUE** Assignment 8: Bouncing Ball in 3D Final Project Proposal
10	Review: Character Walk Cycle (Legs) Character Animation Part II ● Adding personality to characters ● Walk cycle (upper body) ● Editing the graph editor	Assignment 10: Character Walk Cycle (Arms and Upper Body) **DUE** Assignment 9: Character Walk Cycle (Legs and lower body)
11	Review: Character Walk Cycle/Locomotion Character Animation in Maya Part III ● Using character constraints ● Implementing reference footage ● Demonstrating weight	Assignment 11: Final Project Progress (Part I) **DUE** Assignment 10: Character Walk Cycle (Arms and Upper Body)
12	Review: Character Animation in Maya Part III ● Lip sync in Maya	Assignment 12: Lip Sync Animation

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	● Character emotions	**DUE** Assignment 11: Final Project Progress (Part I)
13	Review: Lip Sync Animation ● Review scene lighting ● Rendering image sequences	Assignment 13: Final Project Progress (Part II) **DUE** Assignment 12: Lip Sync Animation
14	Review: Final Project Progress ● Camera animation ● Post production in AE ● Work on final project ● Final project feedback	FINAL PROJECT **DUE** Assignment 13: Final Project Progress (Part II)
15	Review: Final Project ● Review rendering and post production ● Final project feedback ● Implementing sound and backgrounds in AE	
16	Review finished animation (playblast) for final project	**DUE** Final Project Progress (Part III) **FINAL PROJECT DUE** 12/15/17

REQUIRED TEXTBOOKS AND SOFTWARE:

1. Williams, Richard. *The Animator's Survival Kit--Revised Edition: A Manual of Methods, Principles and Formulas for Classical, Computer, Games, Stop Motion and Internet*. Faber & Faber, 2012.
2. Autodesk Maya 2017 Educational Version (Free for students) **DOWNLOAD**
3. Adobe Photoshop CS6/CC
4. Adobe After Effects CS6/CC
5. Two-monitor setup (ONLINE students only)

RECOMMENDED MATERIALS:

1. Hooks, Ed. *Acting for Animators, Revised Edition: A Complete Guide to Performance Animation.* Routledge, 2011
2. Johnston, Ollie. *The Illusion of Life: Disney Animation.* Disney Press, 1995
3. Lynda.com, Online Tutorials *(Free access for UF students)*
4. Williams, Richard. The Animator's Survival Kit App:
   https://itunes.apple.com/us/app/the-animators-survival-kit/id627438690?mt=8

COURSE FEES:

Course fees are assessed for certain courses to offset the cost of materials or supply items consumed in the course of instruction. A list of approved courses and fees is published in the Schedule of Courses each semester. (UF-3.0374 Regulations of the University of Florida).

Material and supply and equipment use fee information is available from the academic departments or from the schedule of courses (Florida Statutes 1009.24). The total course fee for this class is $42.26

The total course fee for each course is listed on the UF Schedule of Courses. (https://registrar.ufl.edu/soc/).

EVALUATION OF GRADES

Assignment	Total Points	Percentage of Grade
Participation – Students are expected to actively participate in class discussions, both in class as well as in class online forums outside class meetings.	100	10%
Weekly Assignments and Quizzes – Weekly assignments and group projects are due the Tuesday session of each week unless otherwise noted. The work will be uploaded to CANVAS prior to the beginning of class otherwise the work will be considered late.	100	55%
Final Project – The result of the semester long effort in learning. It is expected that in this final project, students employ the principles and techniques they have learned during the semester.	100	35%

GRADING SCALE:

Letter Grade	% Equivalency	GPA Equivalency
A	94 – 100%	4.0
A-	90 – 93%	3.67
B+	87 – 89%	3.33
B	84 – 86%	3.00
B-	80 – 83%	2.67
C+	77 – 79%	2.33
C	74 – 76%	2.00
C-	70 – 73%	1.67
D+	67 – 69%	1.33
D	64 – 66%	1.00
D-	60 – 63%	.67
E, I, NG, S-U, WF		0.00

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More information on grades and grading policies is here:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

COURSE POLICIES:

PARTICIPATION / ATTENDANCE
We value participation more than mere attendance. Each Instructor is responsible for communicating the specific details of what percentage of your grade (if any) will be assigned to participation, and how class participation will be measured and graded. Real Time [RT] interaction with your peers and the Instructor will empower you to greater achievement.

MAKE-UP POLICY
Documented emergencies or medical situations are the only accepted reasons for an excused absence or missing a project submission deadline. Students are expected to work with the instructor to establish new deadlines if original project submission deadlines cannot be met.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

COURSE TECHNOLOGY
The students will be required to have access to, and use a personal computer with the access to the Internet. Word editing software will be required for written assignments.

COURSE COMMUNICATIONS
Students can communicate directly with the Instructor regarding the course material through the course management system (CANVAS).

VIDEO LECTURE CAPTURE
High-quality video lecture capture of this course is available only for enrolled students. These video captures are edited and posted within 24-48 hours of the class meeting for the benefit of the Your Own Time [YOT] students and to offer the potential for review by on-campus and Real Time [RT] online students. For the on-campus and RT students, watching lectures in lieu of attending and participating in class is NOT acceptable.

Your Instructor will provide you with this semester's login information during the first week of class. It is not permissible to share or distribute video login information to anyone other than officially enrolled students of this course. Lecture videos can be found at https://vimeo.com/digitalworlds.

UF POLICIES:

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UNIVERSITY HONESTY POLICY
UF students are bound by The Honor Pledge that states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

CLASS DEMEANOR
Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

STUDENTS REQUIRING ACCOMMODATIONS
Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

NETIQUETTE COMMUNICATION COURTESY
All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats, more information can be found at: http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf

ONLINE COURSE EVALUATIONS
Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at evaluation results.

CAMPUS RESOURCES

HEALTH AND WELLNESS
   U Matter, We Care
   If you or a friend is in distress, please contact umatter@ufl.edu or 352 392- 1575 so that a team member can reach out to the student.

   Counseling and Wellness Center

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http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department, 392-1111 (or 9-1-1 for emergencies). http://www.police.ufl.edu/

ACADEMIC RESOURCES

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning- support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. http://www.crc.ufl.edu/

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. http://teachingcenter.ufl.edu/

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. http://writing.ufl.edu/writing-studio/

Student Complaints Campus:
https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

On-Line Students Complaints:
 http://www.distance.ufl.edu/student-complaint-process

Disclaimer: This syllabus represents the instructor's current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

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