



Instructor Name: Aaron C. Karlson

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Office: NRG

Hours: TBD

DIG4306 Advanced Digital Animation Techniques

Spring 2024

Course Meetings: Mondays 11:45 AM – 1:40 PM, Wednesdays 12:50 PM – 1:40 PM

Course Modality: Face-to-Face (F2F) Live, Online Asynchronous (OA)

Course Description

This course focuses on advanced work in the practical principles and techniques of 3D software animation environments. Includes quad mesh design and editing for complex motions, shading techniques and lighting, various camera projection models, rendering techniques, and efficient use of GPU resources for photorealistic real-time 3D animation.

Course Prerequisites

DIG 3305 3D Digital Animation Techniques

Learning Outcomes

By the end of this course, students will be able to:

- Demonstrate knowledge of the complete workflow for 3D character animation in the film and video game industries
- Articulate the differences between animation aesthetics for motion graphics and film
- Create 3D digital environments utilizing parametric modeling workflow in Cinema 4D
- Create key framed animation for complex body motions and character performances in Maya

Materials & Books

Required

Required Software and Materials

- Cinema 4D R25/Maxon One (Educational version is \$20.00 for one year) [DOWNLOAD](#)
- Autodesk Maya 2023 or 2024 (Educational version is free for students) [DOWNLOAD](#)
- Adobe Photoshop CC
- Adobe After Effects CC
- Adobe Media Encoder
- Adobe Premiere
- 3 Button Mouse

- Two-monitor setup for software instruction (Online students only)

Recommended Books

- *The Animator's Survival Kit – Revised Edition: A Manual of Methods, Principles, and Formulas for Classical, Computer, Games, Stop Motion, and Internet* Williams, Richard 2012, 2nd 978-0865478978

Course Schedule

This schedule is only a guide and is subject to change. Unless otherwise indicated, assignments and readings are due the day they are listed on the syllabus, not the following day.

Week	Subject	Assignment Quizzes	Assignments/ Discussions Due
1	-Instructor Introduction -Course Intro -Canvas Walkthrough -Introduction to Motion Graphics -The Cinema 4D Workspace -Cinema 4D Environments and Examples	Course Orientation Quiz Assignment 1: Cinema 4D Environment	Discussion: A1 Project Ideas and Mood boards
2	-Mood board Creation and Reference Gathering -Using References in Cinema 4D -Using Generator Objects in Cinema 4D -Maya Refresher 1	Quiz: Maya Refresher 1	Discussion: A1 Project Progress Update 1
3	-Instance Objects in C4D -Booleans and Volume Building in C4D -Modeling Complex Objects		Discussion: A1 Project Progress Update 2
4	-Basic Component Modeling in C4D -Phase Breakdown of a Cottage Modeled in C4D -Applying and Editing Materials -Lighting and Rendering in C4D -Maya Refresher 2 -Submitting Assignment 1	Quiz: Maya Refresher 2	Assignment 1: Cinema 4D Environment Discussion: Texturing and Lighting
5	-12 Principles of Animation Review -Maya Review and Malcolm Rig Overview -Installing and Using Pickers for Animation -Analyzing and Creating a Character Pose from a Reference Photo -Reference Filming Advice and Analyzation -Assignment 2 Overview	Assignment 2: Chair Animation	Discussion: Character Pose 1 Discussion: Assignment 2 Reference Footage Discussion
6	-Weight Analysis -Blocking Pass Overview and Planning Documents	Quiz: IK/FK Parenting/Con	Dailies Group A (Assignment 2)

	<ul style="list-style-type: none"> -Believable Movements & Interactions: Effective Use of IK, FK, Constraints, & Parenting -IK, FK, & Constraints: Use & Implementation -IK, FK, & Constraints: Scene Analysis -The Dailies Review Process 	<p>straints</p> <p>Dailies Group A (Assignment 2)</p>	<p>Discussion: Dailies Group A Response</p>
7	-Breakdown Pass Implementation	<p>Dailies Group B (Assignment 2)</p>	<p>Dailies Group B (Assignment 2)</p> <p>Discussion: Dailies Group B Response</p>
8	<ul style="list-style-type: none"> -Polish Pass Implementation -Advanced Animation Planning Documents for Complex Animation 	<p>Assignment 3: Advanced Motion Part 1: Planning Document</p>	<p>Assignment 2: The Acting Chair</p> <p>Assignment 3: Advanced Motion Part 1: Planning Document</p>
9	<ul style="list-style-type: none"> -Camera Animation Fundamentals -Blocking Passes for Complex Animation -Final Project Proposal Overview and Concept Development for Multi-shot Films in 3D -Assignment 4 and Dailies Overview 	<p>Assignment 4: Advanced Motion Part 2: Blocking</p> <p>Final Project Proposal</p>	<p>Discussion: Final Project Proposal</p>
10	<ul style="list-style-type: none"> -Breakdown and Polish Passes for Complex Animation -Production Planning for Multi-shot Films in 3D 	<p>Assignment 5: Advanced Motion Part 3: Breakdown/Polish</p> <p>Dailies Group B (Assignment 2)</p>	<p>Final Project Proposal</p> <p>Dailies Group B (Assignment 4)</p> <p>Discussion: Dailies Group B Response</p>
11	<ul style="list-style-type: none"> -Basic Acting Overview -Complex Animation Wrap Up -Advanced Face Posing for Advanced Character Rigs 	<p>Dailies Group A (Assignment 5)</p>	<p>Dailies Group A (Assignment 5)</p> <p>Assignment 5: Advanced Motion Part 3: Breakdown/Polish</p> <p>Discussion: Dailies Group A Response</p> <p>Discussion:</p>

			Character Pose 2
12	-Exploring Other Advanced Character Rigs -Performance Techniques and Reference Footage	Quiz: Assessing New Rigs Dailies Group A: (Final Project)	Assignment 5: Advanced Motion Part 3: Breakdown/Polish Dailies Group A: (Final Project) Discussion: Dailies Group A Response
13	-Production Level Rendering	Dailies Group B: Final Project	Assignment 6: Face Animation Exercise Dailies Group B: (Final Project) Discussion: Dailies Group B Response
14	-Demo Reels and Art Careers	Final Project: Playblast Version	Final Project: Playblast Version Discussion: Demo Reels and Career Focuses
15	- Final Project Wrap-Up	Final Project: Rendered Version	Final Project: Rendered Version

Grading Criteria

Assignment / Assessment	Total Points	% of Grade
<p>Participation</p> <p>Students are expected to actively participate in class discussions, both in class as well as in class online forums outside class meetings. All students must be active participants in the critique process during “Dailies” (either through in-class sessions, or online discussions) Online students will be given discussions to complete and respond to that pertain to the subject matter we are reviewing in class</p>	100	10

<p>Assignments 1-5</p> <p>Animation assignments are multi-week projects that are reviewed in the “Dailies” process for feedback and critique. Assignments will be due at the end of the week (unless otherwise noted). Work submitted after 11:59 PM on that date will be counted late, at 10 pts per day.</p>	100	40
<p>Dailies Presentations/Pose Exercises/Quizzes</p> <p>Students will be assigned “Dailies” submissions to be reviewed in-class. These “Dailies” sessions are important learning devices for each student. They are due before the start of class and cannot be turned in late. Pose exercises allow the students to familiarize themselves with the rig and with proper posing workflow. Quizzes will be assigned throughout the semester for important technical/animation knowledge retention.</p>	100	25
<p>Final Project</p> <p>The Final Project is the result of a 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.</p>	100	25
<p>Participation</p> <p>Students are expected to actively participate in class discussions, both in class as well as in class online forums outside class meetings. All students must be active participants in the critique process during “Dailies” (either through in-class sessions, or online discussions) Online students will be given discussions to complete and respond to that pertain to the subject matter we are reviewing in class</p>	100	10

Grading Scale

Letter Grade	% Equivalency
A	94 – 100%
A-	90 – 93%
B+	87 – 89%
B	84 – 86%
B-	80 – 83%
C+	77 – 79%
C	74 – 76%
C-	70 – 73%
D+	67 – 69%
D	64 – 66%
D-	60 – 63%
E, I, NG, S-U, WF	0 – 59%

More information on grades and grading policies is here: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Materials and Supply Fees

Material and supply and equipment use fee information are available from the academic departments or from the schedule of courses (Florida Statutes 1009.24). The total course fee for this class is \$0.00. The total course fee for each course is listed on the UF Schedule of Courses. (<https://registrar.ufl.edu/soc/>)

Course Policies

Attendance Policy, Class Expectations, and Make-Up Policy

The 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. The UF Digital Worlds Institute is committed to the idea that regular student engagement is essential to successful scholastic achievement. No matter if the class is held in a traditional classroom, an online classroom, or a combination of the two, interaction with your peers and the instructor will empower you to greater achievement.

In our course, attendance is taken at the beginning of each class period, and is calculated as the Participation element which makes up 10% of your overall grade. Any unexcused absences are factored into the Participation grade total. Exempt from this policy are only those absences involving university-sponsored events, such as athletics and band, and religious holidays, family emergencies, and health issues for which you must provide appropriate documentation in advance of the absence.

All assignments are due by the stated date and time. Late submissions will incur a 10-point deduction (This has no maximum). Assignments will close 5 days after the due date. Students are expected to proactively communicate with the instructor if they are unable to submit an assignment by the deadline for an excused reason. Students are also expected to communicate about assignment submissions to develop strategies that best help them succeed.

Additionally, tardiness will not be tolerated. If you are tardy for three class periods, you will receive an unexcused absence.

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/UGRD/academic-regulations/attendance-policies/>

Students may only participate in classes if they are registered officially or approved to audit with evidence of having paid audit fees. The Office of the University Registrar provides official class rolls to instructors. Students are responsible for satisfying all academic objectives as defined by the instructor. Absences count from the first-class meeting.

Acceptable reasons for absence from or failure to engage in class include illness; Title IX-related situations; serious accidents or emergencies affecting the student, their roommates, or their family; special curricular requirements (e.g., judging trips, field trips, professional conferences); military obligation; severe weather conditions that prevent class participation; religious holidays; participation in official university activities (e.g., music performances, athletic competition, debate); and court-imposed legal obligations (e.g., jury duty or subpoena). Other reasons (e.g., a job interview or club activity) may be deemed acceptable if approved by the instructor.

For all planned absences, a student in a situation that allows an excused absence from a class, or any required class activity must inform the instructor as early as possible prior to the class. For all unplanned absences because of accidents or emergency situations, students should contact their instructor as soon as conditions permit.

Students shall be permitted a reasonable amount of time to make up the material or activities covered during absence from class or inability to engage in class activities because of the reasons outlined above.




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/UGRD/academic-regulations/attendance-policies/>

Course Modality

Course modality is the way in which a class is offered/delivered to students by the instructor. All students, regardless of the modality, will achieve the same learning objectives. Students can check their class schedules or reference the top of this syllabus to see the format(s) available for each of their individual classes. The modality of a course does not vary

during a semester, and students are expected to adhere to the instructor-defined attendance guidelines for that format. Use the guide below to familiarize yourself with the various ways classes are offered at the Digital Worlds Institute.

Know Your Course Modality

		
Face-to-Face (F2F)	Online Asynchronous (OA)	Online Synchronous (OS)
Students attend class F2F in a classroom. Class sessions may be recorded for students to view later.	Students watch the posted recording of the class session or studio recording online at their convenience.	Students participate in a class in real-time through Zoom.
Hybrid refers to a course that is partially Face-to-Face (F2F) and Online Asynchronous (OA)		
In a HyFlex Model , students have the flexibility of moving across all three modalities as needed or desired.		

Course Technology

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

The University of Florida and Digital Worlds requires that students have access to and ongoing use of a laptop/mobile computer for DIG courses in order to be able to function in the current learning environment. Digital Worlds requires each DAS major's laptop computer to meet certain minimum specs for heavy graphics use, the requirements documented below must be met. <https://digitalworlds.ufl.edu/programs/ba-in-digital-arts-sciences/technology-requirements/>.

Course Communications

Students can communicate directly with the instructor regarding the course material through the course management system (CANVAS) using "Canvas Mail".

Course Recordings

Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Creation of Original Content Ethics

For original projects and all assignment deliverables, students should remember that representations of acts of violence, coarse and offensive language, sexual behavior, bodily function and ability, neurodiversity, and personal identity are likely to cause extreme audience response, regardless of the creator's intentions. In addition, the recreation of such actions and subjects for fictional purposes may unintentionally traumatize or negatively impact those who collaborate in the creation of the images. While the university encourages students to explore themes and tell stories that may include

this difficult subject matter, they should be cautioned against modes or styles of representation that might be considered unnecessarily offensive or potentially triggering. Instructors, faculty, and university administrators reserve the right to not show or share any student work they feel is inappropriate for their classroom or for public exhibition, as there may be concerns about the impact of such work on the community. We encourage students to consult with their faculty when producing work that might be considered controversial, and to err on the side of being cautious when it comes to making decisions about a project's content - in other words, make the PG-13 version of your story, not the R version, and certainly not the "unrated" version. This is also to help students understand that most professional creative situations have strict guidelines and limitations on such content and how it is produced: your ability to tell stories effectively with "less" is a strong professional skill that will aid in the dissemination of your work to a broader audience.

Course Technology Support

DW Computer Workstations

Digital Worlds offers several high-end computer workstations for students enrolled in DIG coursework that can be reserved in advance to support student assignments and projects. Reservation times vary throughout the semester. To make a reservation: <https://digitalworlds.ufl.edu/workstations>

Usage Policy

The Digital Worlds Computer Work Stations will be used in conjunction with the curriculum and the educational mission of the Institute. Their use is considered a privilege rather than a right. Students will be responsible for adhering to all technology use conditions and rules presented by the Digital Worlds Institute. Any violation of the terms and conditions may result in losing access to technology.

These DW computer workstations have been established for limited educational purposes, including classroom and career development activities. It has not been established as public access or a public forum. The Digital Worlds Institute has the right to place reasonable restrictions on the material you access or post and the training you need before you are allowed to use the system.

UF Computing Help Desk

For support related to account services, technical consulting, mobile device services, software services, administrative support, application support center, and learning support services, please contact the [UF Computing Help Desk](#) available 24 hours a day, 7 days a week at 352-392-4357 or helpdesk@ufl.edu.

University Policies

University Honesty Policy

UF students are bound by The Honor Pledge which 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 (<https://www.dso.ufl.edu/sccr/process/student-conduct-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 who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, 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>

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://catalog.ufl.edu/UGRD/academic-regulations/ferpa-confidentiality-student-records/>

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>

Campus and Academic Resources

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).

University Police Department: [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

E-learning technical support: Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: [Visit the Student Honor Code and Student Conduct Code webpage for more information.](#)

Online Students Complaints: [View the Distance Learning 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.