

**ATEC 3328-001 Rigging I**  
Christopher Moezzi  
Term: Fall 2013  
Meeting Time: Wednesday: 4:00pm-6:45pm  
Room: ATC 3.101

**Contact Info**

**Office: TBA**

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Office Hours: By appointment only

**Course Description:**

This course is an introduction to the concepts, tools and techniques used in 3D animation for setting up clean and efficient 3D rigs that are easily able to be animated. Topics will include hierarchical structures, joints and bones, constraints, creating useful and predictable deformations and setting up simple and intuitive control structures for use in animation. Introductory animation techniques will also be covered.

**Course Requirements:**

Students must have completed the ATEC 2382 or ATEC 2326 course.

**Course Structure:**

Class sessions will consist of lectures, demonstrations, critiques, and class discussions focusing on assignments. The class format will take on a variety of styles as the subject dictates, and examples will be presented for discussion in lectures, videos and demonstrations. Attendance is required and students are expected to be participating and working in each and every class. Students are encouraged to collaborate in solving difficult technical and conceptual problems that are a part of each project.

**Course Objectives:**

Through the successful completion of this course students will:

- Establish an understanding of the basic principles of creating moveable 3D computer-generated forms
- Develop a new set of vocabulary of terms and concepts related to the creation and manipulation of computer graphics
- Develop specific character setup animation skills for both collaborative and independent work in animation
- Establish a methodology for analyzing and problem solving as it relates to 3D computer-generated forms
- Continue to develop the ability to offer informed and constructive, technical and aesthetic critiques of the work of peers and of self
- Develop a practical understanding of the specific computers and software used in the course

**Textbooks:**

There is no required text for this course. There are a couple of recommended books that go into the subject of character rigging for those interested in additional reading material:

- *Inspired 3D Character Setup* by Michael Ford & Alan Lehman, ISBN 1-931841-51-9
- *An Essential Introduction to Maya Character Rigging* by Cheryl Cabrera, ISBN 978-0-240-52082-7

Both books are available on Amazon.com

Course specific video material will also be available at [http://atec.utdallas.edu/atec\\_course\\_materials/](http://atec.utdallas.edu/atec_course_materials/)  
- Login with your UTD NetID and password

**Course Materials:**

Pen/Pencil

Notebook/Sketchbook

Archive materials (dvd, flash drive, etc..)

**Grading Policy:**

Students must demonstrate satisfactory achievement of course objectives through fulfillment of course assignments and by contributing to class discussions and critiques. Course assignments will require students to use software and equipment available at the ATEC computer labs. Course evaluation will be based upon the following.

**Points Required for Grade:**

A	94 - 100
A-	90 - 93
B+	88 - 89
B	84 - 87
B-	80 - 83
C+	78 - 79
C	74 - 77
C-	70 - 73
D+	68 - 69
D	64 - 67
D-	60 - 63
F	Below 60 is failing

**Assignment Point Values:**

- Assignments 1 – 4: 10 points each
- Assignment 5: 25 points
- Final Project: 35 points
- Total: 100 points

**Make-up Exams:** Makeup exams are available only to students who have a legitimate excuse for missing an exam, such as illness, scheduled job interview out of town, athletic team event out of town, death in the immediate family, etc. If you know in advance that you must miss an exam, give a written notice to the instructor in advance, and bring documentation to support your anticipated absence. If you miss an exam unexpectedly because of last minute illness or accident, submit a note to the instructor when you return to campus (or as e-mail attachment if you will be away for some time) with documentation of your situation.

**Second Chance:** There *may* be opportunities for students to resubmit improved work for extra consideration. In order to be eligible the student must have turned in the completed assignment on its original due date and fulfilled all specified requirements. Revisions should be based upon class critique feedback.

**Class Attendance:** All students are required to be on time and in attendance for each and every class. Two (2) absences are allowed as personal or sick leave for this semester. Students will receive one letter grade reduction for three (3) absences. Students who accumulate four (4) absences or more should withdraw from the course due to four (4) absences resulting in a failing grade ("F ") for the course.

**Punctuality:** It is important to attend class on time. Persistent and reoccurring tardiness is disrespectful to the instructor and to your peers. Arriving to class more than 15 minutes late twice will be counted as one (1) absence. Every additional late arrival will result in one (1) absence. Students may leave early with instructor's permission; however, such occurrences should be very infrequent.

**Late Assignments:** Adherence to deadlines is expected. It is the individual student's responsibility to keep track of the goals and deadlines and to present the work to the class and instructor on the specified dates. For most assignments, late submissions will have *one point* deducted *for each day late*. No late assignments will be accepted for the Final Project. Students will be expected to make a formal presentation of their progress on dates specified by the course timeline.

**Class Participation and Classroom Citizenship:**

- Cell phones and pagers must be powered off during formal class hours.
- Do not talk when others (the instructor, guests, and fellow students) are talking.
- Students will not use the computers for personal reasons (e.g. check personal email, surf web) during class time.
- Participate in critique sessions and class discussions. You can learn a great deal from critique on other students' work as well on yours.

While the instructor or a guest is lecturing or demonstrating, you should be listening to the lecture or observing the demonstration, *AND TAKING NOTES*, instead of emailing or web surfing. Not paying attention to lectures or demonstrations will affect your grade directly or indirectly.

**Student Conduct and Discipline:**

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations, which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, A to Z Guide, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3, and in Title V, Rules on Student Services and Activities of the university's Handbook of Operating Procedures. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrates a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings. Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on

plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

**Copyright Violations:**

It is a federal crime to reproduce copyrighted software. Anyone caught reproducing software from the UTD labs will be subject to disciplinary action. In addition, anyone caught reproducing outside software in the lab will automatically lose all lab privileges and will be subject to other disciplinary action as deemed necessary.

**Email Use:**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

**Withdrawal from Class:**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

**Sept 11 – Last day to withdraw without a “W”**

**Oct 31 – Last day to withdraw with a “WL” – Signature Required**

**Student Grievance Procedures:**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's Handbook of Operating Procedures.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called “the respondent”). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

**Incomplete Grades:**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.

**Office of Accessibility:**

The goal of the Office of Accessibility is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. The office is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m. The contact information for the Office of Accessibility Services is:

The University of Texas at Dallas, SU 22  
PO Box 830688  
Richardson, Texas 75083-0688  
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. The Office of Accessibility provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

**Religious Holidays:**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

**Off Campus Instruction and Course Activities:**

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at [http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm). Additional information is available from the office of the school dean.

## COURSE SCHEDULE

– *this schedule is subject to change!* Announcements will be made in class and revised schedule and due dates will be made available online.

**Week 1 (Aug 28):** Introductions, Maya review, Simple Hierarchical Structures, Basic Animation

- ☐ Assignment 1, Ball and Pendulum
  - watch all videos for Assignment 1 and Week 1
  - videos available at [http://atec.utdallas.edu/atec\\_course\\_material](http://atec.utdallas.edu/atec_course_material)

**Week 2 (Sept 4):** Constraints, Indirect Animation, Non-linear Deformers, Motion Path Animation

- ☐ **Assignment 1, Ball and Pendulum Due**
- ☐ Assignment 2, Constraint Exercises
  - watch all videos for Assignment 2 and Week 2

**Week 3 (Sept 11):** Review Indirect Animation Techniques

- ☐ **Assignment 2, Constraint Exercises Due**
- ☐ Assignment 3: choice of 3a: Walk Cycle Animation or 3b: Rube Goldberg Device, depending on prior experience with animation.
  - watch all videos for Assignment 3 and Week 3

**Week 4 (Sept 18):** Intro to Character Animation

- ☐ Assignment 3, (cont.) Walk Cycles & Goldberg Devices WIP
  - watch all videos for Week 4

**Week 5 (Sept 25):** Intro to Joints, Control Structures, Kinematics; SC, RP and Spline IKs

- ☐ **Assignment 3, Walk Cycle Animation or Rube Goldberg Device Due**
- ☐ Assignment 4, Juggling Animation
  - watch all videos for Assignment 4 and Week 5

**Week 6 (Oct 2):** Review IK Setup, Spline IK Setup

- Assignment 4, (cont.) Juggling WIP
  - watch all videos for Week 6

**Week 7 (Oct 9):** Custom Channels, Reverse Foot Setup, Cleaning Up Channels

- ☐ **Assignment 4, Juggling Animation Due**
- ☐ Assignment 5, “Max For Maya” Rig Tutorial
  - watch all videos for Assignment 5 and Week 7

**Week 8 (Oct 16):** Intro to Binding, Component Editor, Weight Painting Tool

- ☐ Assignment 5, (cont.) “Max For Maya” Rig WIP
  - watch all videos for Week 8

**Week 9 (Oct 23):** IK/FK Switching, Simple Facial Controls, BlendShapes

- ☐ **Assignment 5 part 1, “Max For Maya” Rig with dummy geo Due**
- ☐ Assignment 5, (cont.) WIP
  - watch all videos for Week 9

**Week 10 (Oct 30):** Assignment 5 Presentations, Planning Your Final Character Rig

- ☐ **Assignment 5 part 2, “Max For Maya” Rig Due**
- ☐ Final Project, (a) Bi-ped Character Rig and (b) Rube Goldberg Device
  - videos as announced in class

**Week 11 (Nov 6):** Advanced Deformations, GUI control systems

- ☐ Final Project, (cont.) Bi-ped Character Rig
  - videos as announced in class

**Week 12 (Nov 13):** Final Project WIP

- ☐ Final Project, (cont.) Bi-ped Character Rig

**Week 13 (Nov 20):** Final Project WIP

- ☐ **Final Project, Bi-ped Character Rig Preliminary Pass**
- ☐ Final Project, (cont.) Addition of Goldberg Device

**Week 14 (Nov 27): NO Class - Thanksgiving Holidays (Fall Break)**

**Week 15 (Dec 4):** Final Project WIP

- ☐ Final Project, (cont.) Revised Character Rig interacting with Rube Goldberg Device

**Week 16 (Dec 11):** Final Project WIP

Final Project, (cont.) Revised Character Rig interacting with Rube Goldberg Device

**Finals Week (Dec 18): Final Project Presentations**

**These descriptions and timelines are subject to change at the discretion of the instructor.**