

## **ATEC 4345.001 Motion Capture Animation**

Instructor: Dr. Midori Kitagawa

Term: Summer 2016

Class time: M 1:00 pm - 5:00 pm

Location: ATEC 3.101

Syllabus: <http://atec.utdallas.edu/~midori/4345/syllabus.htm>

**Contact** Phone: (972) 883-2806

**Information** Office: ATEC 1.909

Email: [midori@utdallas.edu](mailto:midori@utdallas.edu)

Office hours: M 11:00 am - noon

**Mocap lab  
manager**

Adam Buxkamper, [elhaha56@utdallas.edu](mailto:elhaha56@utdallas.edu)

**Links to Process** Animation project group

Members

**Books...**

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**Course Description** ATEC 4345 is a group project based course in which students learn the motion capture pipeline from calibrating the system and capturing data to editing data and applying data to animated characters. Students follow the 3D computer animation production process to complete short animations or game projects. The end products are expected to be animations of quality that will be in professional demo reels.

**Learning  
Outcomes**

- Understand the theory and practice of motion capture technology.
- Understand the 3D computer animation production process.
- Develop an animation to be included in a professional portfolio.
- Learn technical terms related to 3D computer animation and motion capture technology.
- Enhance the ability to discuss current issues related to 3D computer animation.
- Demonstrate the ability to offer both technical and aesthetic criticisms.
- Create an on-line "process book" as a web site or blog that documents the conceptual, technical, and artistic development throughout the semester.
- Understand the latest technology and develop new applications in motion capture.

**Course  
Requirements**

- Attend every class on time. See [class attendance policy](#).
- Complete assignments on time and in a professional manner.
- Collect research and document conceptual material in an online process book.
- Participate individually and as a contributing member of a team.

**Required Reading** *Mocap for Artists: Workflow and Techniques for Motion Capture* by Midori Kitagawa and Brian Windsor, 2008, Focal Press / Elsevier

**Course** Storage media and a note book

**Materials**  
**Classroom**  
**Citizenship**

- Phones must be silenced during class hours.
- No texting, emailing, web surfing or chatting with classmates during class hours.

**Course** Class sessions will consist of lectures, demonstration, video viewing, studio work, critiques and discussions. The class format will take on a variety of styles, as the subject dictates. Examples will be presented and discussed in lectures, video viewing, and demonstrations.

**Off-site** Students are encouraged to complete all work at the ATEC computer labs in order to benefit from collaborative learning with your peers. Problems with "off-site" systems (e.g., hard-disc crash and software incompatibility) will not be an acceptable excuse for missed or late assignments.

<b>Academic Calendar</b> Calendar is subject to change. Check periodically for updates.	Week Date	Topics	Reading	Essential Milestones	Assignments
	Wk 1 5/23	<a href="#">History of mocap, motion capture</a> , previous class works, <a href="#">character development exercise</a>	Chap 1: Overview and history Chap 2: Preproduction <a href="#">Principles of Animation</a> from <i>Illusion of Life</i>		<a href="#">A1 Preproduction</a>  <a href="#">Digital cinematography</a> <a href="#">Virtual camera project</a>
	Wk 2 5/30	Memorial day			
	Wk 3 6/6	<a href="#">Pipeline, flow chart, marker set</a> , calibrations & capture (Blade)	Chap 3: Pipeline Chap 4: Cleaning and editing data Chap 12: Data formats and math Chat 5: Skeletal editing	Finalizing character design	A1 due <a href="#">A2 Data capture and character modeling</a>
	Wk 4 6/13	Applying motion to a skeleton: <a href="#">Char to char</a> , <a href="#">Coordinate systems</a> , <a href="#">Editing &amp; blending</a>	Chap 6: Data application: props Chap 7: Data application: composing	Rough models and skeletons for characters MUST be presented on this date.	A2 due <a href="#">A3. Applying motions to a skeleton</a>

	(MotionBuilder)			
Wk 5 6/20	<a href="#">Camera shots</a> <a href="#">IK, binding skin,</a> <a href="#">IK/FK blend</a> (Maya)	Chap 8: Data application: character rigs Chap 9: Hand capture	Character modeling and rigging MUST be finished by this date.	A3 due <a href="#">A4. Applying motions to a character and creating a 3D animatic</a>
Wk 6 6/27	Blending using <a href="#">Trax</a> , <a href="#">referencing</a> , <a href="#">scripting</a> , <a href="#">Light types</a> , <a href="#">basic lighting</a> , <a href="#">lighting animation</a> (Maya)	Chap 10: Facial capture Chap 11: Puppet capture	All modeling (props & environments) should be done. Lighting & texturing should start	Mid-term exam (1 - 2 pm) Lecture on <a href="#">human anatomy</a> (2 pm - )
Wk 7 7/4	Independence Day			
Wk 8 7/11	<a href="#">Title &amp; credits</a>	3D animatics MUST be presented on this date. Character motions and camera should be refined.		A4. due <a href="#">A5. Final animation &amp; breakdown guide</a>
Wk 9 7/18	<a href="#">Animal anatomy</a>	Lighting & texturing should be finished. Final rendering should start.		
Wk 10 7/25	<a href="#">Portfolio preparation</a>	Final rendering test MUST be presented on this date.		
Wk 11 8/1		Editing should start.		
Wk 12 8/8	Crit			A5 due

**Grading policies** Students must demonstrate satisfactory achievement of course objectives through fulfillment of course assignments and by contributing to class discussions and critiques. Course evaluation will be based upon the following:

Point required for grade (4.0 scale):

A-	3.67 - 3.99	A	4.0 - 4.32	A+	above 4.33
B-	2.67 - 2.99	B	3.0 - 3.32	B+	3.33 - 3.66
C-	1.67 - 1.99	C	2.0 - 2.32	C+	2.33 - 2.66
D	0.67 - 0.99	D	1.0 - 1.32	D+	1.33 - 1.66
F	below 0.66				

Total points:

- Assignments: 70% of the course grade

- Pop quizzes: 10% of the course grade.
- Mid-term exam: 20% of the course grade.

**Plagiarism** When the instructor suspects that a student has submitted a work by someone else as one's own work, it will be reported to the [Judicial Affairs Office](#) and dealt with under the university's policy on plagiarism. Note that copying writing or any other type of work by someone else and submitting it as own work is plagiarism. Types of work subjected to plagiarism include but are not limited: writing, drawing, photography, story idea, script, storyboard, sound, texture, lighting design, 3D model, animation, level design, scripting, and programming.

For instance,

- Copying a fellow student's assignment, modifying it, and submitting it as own work is a plagiarism.
- Copying a file from a DVD or the internet, modifying it, and submitting it as own work is plagiarism.

A failing grade will be recommended by the instructor to the Judicial Affairs Office as one of the possible penalties. Heavier penalties will be given to a repeated offender by the University.

Even if a plagiarism committed in this semester is not discovered within the semester, it will be reported to the Judicial Affairs Office when it is discovered in one of the following semesters. Possible penalties include replacing a passing course grade previously recorded with a failing grade.

An individual who is not currently enrolled as a university student remains subject to the disciplinary process for conduct that occurred during any period of enrollment. Thus, students will be accountable for plagiarism and other misconduct even after graduation. Read [Student Conduct and Discipline](#) for more details.

**Class Attendance** All students are required to be on time and in attendance for each and every class. Read the class attendance policy below carefully and adhere to it:

- Attendance is taken at the beginning of each class.
- Arriving at the classroom after attendance is taken is considered as **tardy**.
- If you arrive at the classroom after the day's attendance is taken, it is your responsibility to let the instructor know of your arrival.
- Arriving at the classroom more than 30 minutes late is considered as **absent**.
- If you are not present in the classroom when the attendance is taken and if you fail to let the instructor know of your late arrival within the first 30 minutes of the class period, you will be considered to be **absent** for the day.
- One absence is allowed as personal or sick leave for this semester.
- Students will receive one letter grade reduction for two absences.
- Two (2) tardies will be counted as one (1) absence. Every additional tardy will be counted as one (1) absence.
- Students who accumulate three (3) absences or more should consider withdrawing since three (3) absences will result in a failing grade ("F") for the course.

Falsifying attendance is a violation of the UTD standards of conduct. If a student who attends a class falsifies the attendance of another student who is absent,

both students will be reported to the Judicial Affairs Office. As the result, the students may receive academic penalties, in addition to receiving failing grades. Read [Student Conduct and Discipline](#) for more details.

Students may leave early with instructor's permission; however, such occurrences should be very infrequent. If a student leaves before the class is dismissed without the instructor's permission, the student will be considered to be absent for the day.

Students who miss class, with or without school approved excused absence(s), are responsible for all class work and materials covered during their absences. To receive approval for excused absences (for reasons such as illness or family emergencies) written document must be submitted. See the graduate/undergraduate advisor for more information.

**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 demonstrate 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.

Read [Student Conduct and Discipline](#) for more details.

**Copyright** It is a federal crime to reproduce copyrighted software. Anyone caught

**Violations** 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** The administration of this institution has set deadlines for withdrawal of any

**Class** 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.

**Student** Procedures for student grievances are found in Title V, Rules on Student

**Grievance** Services and Activities, of the university's Handbook of Operating Procedures. In

**Procedures** 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**As per university policy, incomplete grades will be granted only for work  
**Grades**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.

**Disability**The goal of Disability Services is to provide students with disabilities educational  
**Services**opportunities equal to those of their non-disabled peers. Disability Services 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 Disability Services is:

The University of Texas at Dallas , SU

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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. Disability Services 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**The University of Texas at Dallas will excuse a student from class or other  
**Holidays**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** 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 **Course** [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.

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