



University
of Windsor

School of Computer Science

Winter 2016

0360-550-01

3D Animation & Data Visualization

INSTRUCTOR: *Dr. Imran Ahmad*

Office : LT 8112
 Phone : (519) 253-3000 / 3715
 FAX : (519) 973-7093
 Email : imran@uwindsor.ca
 URL : <http://cs.uwindsor.ca/~imran/courses/60-550>
 Blackboard : <https://blackboard.uwindsor.ca>

(Please note that all of the communication will be through Blackboard)

LECTURE: Wed. 10:00 AM – 12:50 PM in LT 3107

OFFICE HOURS: Tue: 10:30 AM – 12:00 noon in my office; and
 Wed: 12:50 PM – 01:20 PM in my office or LT 3107. **Other times, by appointment ONLY.**

TEXT: (Required) Dariush Derakhshani, Introducing Autodesk Maya 2016
 Wiley; ISBN: 978-1-119-05963-9

PREREQUISITES:

Open to Computer Science graduate students; all other by permission only.

COURSE OBJECTIVES AND OVERVIEW:

Introduction to visualization methods, especially in the context of 3D modeling and 3D animation; 3D geometric modeling, 3D computer animation; forward/inverse kinematics and rigid body dynamic techniques for animation. Students will learn interactive modeling/animation tools and their use to produce motion for animations. Autodesk Maya 2016 will be used for modeling/animation.

COURSE PLAN:

Course has various components as described below:

- **ASSIGNMENTS/MINI-PROJECTS:** There will be 3-5 individual assignments/mini-projects throughout the term. Details of these will be provided at appropriate times. It is likely that all of the assignments may be linked to each other. Hence, it will be in your interest to properly finish a given task. Since visualization is the main component of this course, aesthetics is an important part of it. Students are expected to make it their general habit in this course to properly organize their material and keep it for later reference/use. *Late submission of assignments/mini-projects will be subjected a 25% per late day penalty* (including weekends as well). After four days (including weekend days), there will be no credit for that individual item even though you may still be required to complete it to finish subsequent assignment(s).
- **QUIZZES / EXAMS:** There will be two quizzes during the term. The quizzes may be theoretical, written or hands-on or a combination of all. Failure of successful completion and **in-time** submission of quiz will automatically result in 50% reduction of your score whereas your score in rest of the work will be assessed on the extent and type of work completed. **There will be NO makeup quiz!** If you miss first quiz, its points will be added to the next quiz but **ONLY** for valid and verifiable reasons that must be provided to me as a written document (e.g., **have your doctor fill up “UWindsor Student Medical Certificate”, available from the course web site**). In the absence of such a proof, no makeup quiz will be allowed.

A doctor's note stating that "patient states I am sick" or "had headache" or something similar without professional medical opinion will **NOT** constitute a valid reason and will **NOT** be accepted. **Please note that the instructor reserves the right to REJECT a medical note.** Unless mentioned otherwise, all of the quizzes will be closed book, closed notes and closed neighbors. If you miss the second quiz, there will be a comprehensive makeup quiz (theoretical or hands-on and only for authorized cases with valid reasons) on **Friday Apr. 22, 2016 @ 10:00 AM.** There will be no makeup of the makeup quiz. If you miss scheduled and the makeup quizzes but can provide a satisfactory evidence, score of the taken quiz minus 25% will be used to compute the final percentage for the missing quiz. In such situations, student **MUST** have passed at least one of the taken quizzes.

- **PROJECT:** A very important component of this course is a semester long group project. Further details, including requirements and dates of various milestones, will be in a separate handout. It is expected that projects will be "*design and implementation oriented*" and will involve substantial efforts and time.

Late submission of project or any of its components will be subjected to a 25% per late day penalty. After four days (including weekend days), there will be no credit for the project or that component. Regardless of the points for the project, you **MUST** submit it (project) to receive a final grade.

TOPICS TO BE COVERED:

Following is a tentative list of topics to be covered and includes both the theoretical as well as hand-on components:

- Introduction to Animation and Maya
- Basics of 3D Modeling & modeling paradigms
- Modeling techniques
- Animation techniques
- Keyframe animation
- Motion path animation
- Inverse kinematics (IK)
- Dynamics and particles
- Shading and Materials
- Lighting and its use in modeling and animation
- Driven key animation and constraints
- Mel expressions in Maya
- Mel scripting (time permitting)

ATTENDANCE:

Though not required, attendance is important. Lots of details and information will be provided during the lectures. Lecture sessions will also include necessary information related to the assignments/project. You are responsible for obtaining any of the missing information.

POLICY ON CHEATING:

Unless mentioned otherwise, you are expected to do all of your work on all components of this course (assignments, exams/quizzes, etc.) individually, without the help of others. In cases of suspected cheating, you will get **zero points** for that homework assignments, quiz or question in exam. In your project or assignments, you may use additional material (textures, models, audio, etc.) from alternate sources. However, it will be **your responsibility** to make sure that either the terms of use permit you to use it in your work or you have exclusively obtained permissions by contacting the author/owner of the information. Remember that royalty free doesn't mean that the information is copyright free. Likewise, if you can obtain information through Google or any other search engine or collection site presented by the search engines, it doesn't mean that you are free to use it. There may still be copyrights and you need to take care of them. For any violation of copyright or term of use agreements or plagiarism, instructor **WILL NOT** negotiate with student(s) but, as per Senate policy, will simply forward their names to the director of the School of Computer Science to initiate proceedings for necessary disciplinary action.

Each submission (final project and/or homework assignment) **MUST** include a declaration to the effect that "this is a student project and it does not violates any copyright law". For of final project, it **MUST** be part of **both in animation and written documentation** whereas the declaration in the documentation **MUST** be

signed by **EACH MEMBER** of the project team. In the absence of this declaration, homework assignment and/or project **WILL NOT** be accepted and the above stated policy will be followed and may result in an assignment of zero marks.

TEACHING EVALUATION:

Student Evaluation of Teaching (SET) forms will be administered during the last two weeks of the class schedule.

EVALUATION SCHEME:

The points distribution for various components is as follows:

Assignments/ Mini-projects	18 %	
Quiz	40 %	(Feb. 24, and Mar. 30, 2016)
Project:	42%	(Due: Slot 06; Tue. April 12, 2016 at 12:00 noon)

CONVERSION OF MARKS (new scale used starting Fall 2013)

Since Fall 2013, university is using a new 100% grading system. Therefore, only raw scores (numeric final grades) will be issued to students and all grades below 50% are considered failures. For more details, please following the link:

<http://web4.uwindsor.ca/units/registrar/calendars/undergraduate/cur.nsf/inToc/CA4AB426E84D6C51852573690055F0A1?OpenDocument>

or check the [University of Windsor Senate policy document M5 \(Marks/Grade Descriptors\)](#)

There will be **NO** incomplete grade given under any circumstances.

NOTES:

1. Emails originating **ONLY** from the `uwindsor.ca` domain will be answered.
2. Frequently various pieces of information, announcements and presentation slides will be posted on the course web page. You are advised to keep on checking it for latest information. It is important to remember that the course web page is for your convenience **ONLY** and is not intended to support absence from class.
3. Important dates to remember:
 - Jan. 20, 2016: Last add/drop day (full tuition refund).
 - Feb. 13–19, 2016: Family Day & Study Week, no classes
 - Mar. 16, 2016: Last day for voluntary withdraw from the course.
 - Mar. 24, 2016: Study day (no classes).
 - Apr. 08, 2016: Last day of classes.

“Once the game is over, the king and the pawn go back into the same box” (Italian Proverb)