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Syllabus

CSE 4303-002 / CSE 5365-002 Computer Graphics

2020 Fall Semester, Version 1.0, 2020 August 21

Section Information	CSE 4303-002 CSE 5365-002
Class Time / Place	TR, 14.00-15.20 Online (Canvas Conference)
Instructor	Brian A. Dalio
Email	brian.dalio@uta.edu
Office Location	ERB 557
Office Telephone	+1-817-272-3785
Office Hours	Online (email)

Description of Course Content

CSE 4303 — COMPUTER GRAPHICS.

Theory and practice for the visual representation of data by computers including display devices, output primitives, planes and curved surfaces, two- and three-dimensional transformations, parallel and perspective viewing, removal of hidden lines and surfaces, illumination models, ray tracing, radiosity, color models, and computer animation.

CSE 5365 — COMPUTER GRAPHICS.

Input/output devices and programming techniques suitable for the visual representation of data and images.

Prerequisites

The programming for this class is done in a mixture of C and Python 3.

CSE 4303

Admitted into an Engineering Professional Program and C or better in each of

- ***CSE 3318 — ALGORITHMS & DATA STRUCTURES***: Design and analysis of algorithms with an emphasis on data structures. Approaches to analyzing lower bounds on problems and upper bounds on algorithms. Classical algorithm design techniques including algorithms for sorting,

searching, and other operations on data structures such as hash tables, trees, graphs, strings, and advanced data structures, dynamic programming and greedy approaches.

- ***CSE 3380 — LINEAR ALGEBRA FOR CSE***: Solving systems of equations, matrix algebra, determinants, vector spaces, orthogonality and least squares, with applications to computer science. ***— OR — MATH 3330 — INTRODUCTION TO MATRICES AND LINEAR ALGEBRA***: Solving systems of linear equations, matrix operations, determinants, vector spaces, linear transformation, orthogonality, Gram-Schmidt process, projections, and eigenvalues and eigenvectors.

or consent of the instructor.

CSE 5365

Linear algebra, analytic geometry and C or better in

- ***CSE 1320 — INTERMEDIATE PROGRAMMING***: Programming concepts beyond basic control and data structures. Emphasis is given to data structures including linked-lists and trees as well as modular design consistent with software engineering principles.

or consent of the instructor.

Student Learning Outcomes

This course focuses both on the theoretical and practical implementation of the most common algorithms and techniques in computer graphics. After completing this course, the successful student will be able to

- Represent and construct mathematical models of 3D scenes containing planar objects.
- Represent and construct mathematical models of 3D scenes containing curved objects and surfaces.
- Understand the mathematics and representation of various 2D and 3D transformations.
- Understand and use matrices to transform and position 2D and 3D objects in space.
- Understand and use matrices to create projections of 2D and 3D objects in space.

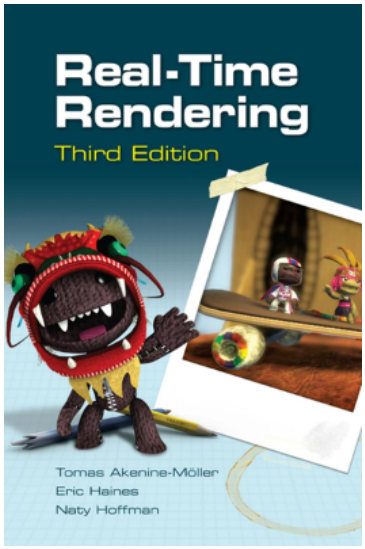
Textbook

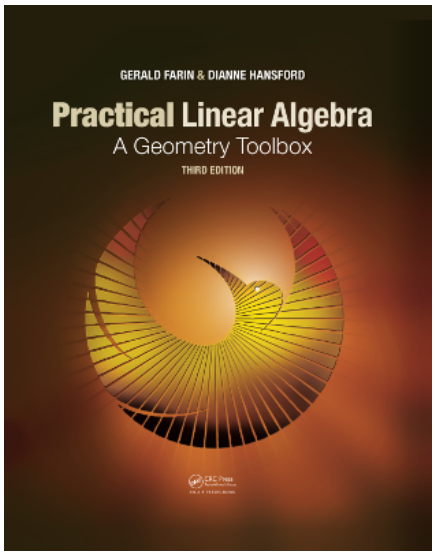
All required reading materials will be provided online.

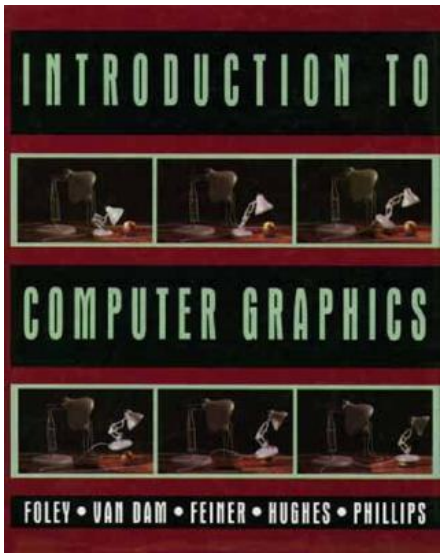
Supplemental books

- *Real-Time Rendering, Third Edition* by Akenine-Möller, Haines, Hoffman, (2008) A. K. Peters, ISBN-13: 978-1568814247.
- *Practical Linear Algebra — A Geometry Toolbox, Third Edition* by Farin, Hansford, (2013) A. K. Peters, ISBN-13: 978-1466579569.

- *Introduction to Computer Graphics* by Foley, van Dam, Feiner, Hughes, Phillips, (1993) Addison-Wesley, ISBN-13: 978-0201609219.







Course Schedule and Important Dates

The official University Academic Calendar for the 2020 Fall semester is available at https://www.uta.edu/academics/academic-calendar/fall-2020. The final exam schedule is available at https://www.uta.edu/records/calendars/final-exams.php.

First day of classes	2020 August 26
Labor Day Holiday	2020 September 07
Census date	2020 September 11
Last day to drop	2020 November 06 Submit to advisor ***before*** 16.00
Last In-Person Day	*N/A*
Thanksgiving Holidays	2020 November 25-27
Last day of classes	2020 December 08
Final examination	2020 December 10 14.00-16.30 ***(subject to change)***

Description of Major Assignments and Examinations

There will be assignments, a midterm examination, and a final examination.

Assignments

- All assignments will be announced suitably in advance of the due date. Pay close attention to the due date and *especially* the due time. There is ***no*** grace period. ***No assignment will be accepted after the due date / time.*** Submissions made after the due date / time will receive ***zero*** credit.
- Assignments must be submitted electronically using Canvas and in the format specified in class and the assignment instructions. Submissions not made using Canvas or not in the correct format will receive ***zero*** credit. Do ***not*** email your assignments to the instructor or the teaching assistant; these will be ignored.
- Submissions must be made directly to Canvas. Do ***not*** link from some other site (e.g., a cloud file server). Submissions not made directly to Canvas will receive ***zero*** credit.

- Each assignment must be *self-contained*. That is, it must include all the required components to run. Only the submitted files will be used when evaluating the assignment. No additional or supplemental files may be used at run time. Your assignments must compile and run without warning or error *as submitted*.
- Submitted assignments that do not compile without warning or error, that do not run, that crash or core dump, or that go into an infinite loop *when evaluated* will receive ***zero*** credit *no matter what output they might otherwise generate*. There is ***no*** partial credit for a program that exhibits *any* of these failures.

  It is ***your*** responsibility to ***test completely*** your assignment ***prior*** to submission and ensure that it executes properly and without warning or error *as submitted*.
- Assignments that implement some but not all of the requirements ***may*** receive partial credit. However, these programs *must* still compile and run without warning or error and *must not* crash or core dump or go into an infinite loop.

- Assignments that violate the requirements will receive ***zero*** credit.

  "*Violate the requirements*" means to do the assignment in a way that contradicts one or more of the requirements given in the assignment's instructions. Here's a trivial example: If the requirements say that you may not use any variable names that start with the letter `q` and in your solution you use, e.g., the variable name `quetzal`, your solution will receive ***zero*** credit, *even if it otherwise appears to run perfectly*.

  The requirements are stated the way they are on purpose. *Pay attention to the requirements!*
- Assignments are usually accompanied by some exercising cases. These cases are *not* meant to be exhaustive. They are provided merely as *examples* of proper behavior. Do *not* assume that because your solution properly executes these exercising cases that it is *entirely correct*.

  It is ***your*** responsibility to ***test completely*** your assignment ***prior*** to submission and ensure that it executes properly and without warning or error *as submitted*. To do this, you will certainly have to write some test cases of *your own*.

- The instructor and the teaching assistant are available to offer help and clarify the concepts required for the assignments. The instructor and the teaching assistant will ***not*** debug your programs for you.

Do ***not*** email your code to the instructor or teaching assistant and ask them to debug your code. That is ***your*** responsibility. (It is also *unfair* to everyone else in the class.)

- A common mistake in an assignment is to upload the ***wrong*** materials to Canvas. Your assignment is graded ***as submitted***.

  Please, please, please check that you have uploaded what you *think* you uploaded. The easiest way to do this is to download your submission into an empty directory after uploading it and evaluate it again in that directory to ensure that the correct materials were uploaded.

  It is ***your*** responsibility to ***validate*** that your assignment is properly submitted and to ensure that it compiles and executes properly and without warning or error *as submitted*.

- The last assignment in this class is due during the final week of classes (Final Review Week). Take this into account now and plan your time accordingly during the semester.

Midterm Examination

- About halfway through the semester there will be a midterm examination. It will cover everything that has been presented or discussed to that point in the lectures, supplied materials, texts, and homeworks.

- The midterm examination will be given through Canvas using the Lockdown Browser / Monitoring. Ensure that you have a suitable and secure place to take the midterm examination. Ensure that you have a reliable internet connection (*not* flaky WiFi!) and a reliable machine through which you can take the midterm examination.

- The midterm examination is closed-book. No reference materials of any kind are permitted.

- The date of the midterm will be announced in advance. It will occur during a normal class period. It is ***not*** possible to take the midterm examination at another time.

- You must have your valid University of Texas / Arlington student ID to take the midterm examination. You must present your valid student ID when taking the midterm examination.

- There will be ***no*** make-up midterm examinations given unless one has an ***approved*** and properly ***documented medical*** excuse.

Final Examination

- There will be a ***comprehensive*** final examination. It will cover everything that has been presented or discussed throughout the semester in the lectures, supplied materials, texts, and homeworks.

- The final examination will be given through Canvas using the Lockdown Browser / Monitoring. Ensure that you have a suitable and secure place to take the final examination. Ensure that you have a reliable internet connection (*not* flaky WiFi!) and a reliable machine through which you can take the final examination.

- The final examination is closed-book. No reference materials of any kind are permitted.

- The final examination will be given at the stated time. It is ***not*** possible to take the final examination at another time.
- You must have your valid University of Texas / Arlington student ID with you to take the final examination. You must present your valid student ID when taking the final examination. You will ***not*** be permitted to take the examination without presenting your valid student ID.
- There will be ***no*** make-up final examinations given unless one has an ***approved*** and properly ***documented medical*** excuse.

Technology Requirements

- All instruction will be through Canvas Conferences.
- All homework must be submitted through Canvas.
- All examinations will be conducted through Canvas using the Lockdown Browser / Monitoring. You ***must*** have a working webcam to take the examinations. You ***must*** have a valid, current University of Texas / Arlington Student ID to take the examinantions.

Grading Policy

Grades will be calculated according to the following percentage contributions.

Assignments	25%
Midterm examination	35%
Final examination	40%

The final letter grade will be assigned according to the following scale.

> 90%	A
80% - 90%	B
70% - 80%	C
60% - 70%	D
0% - 60%	F

- The final letter grade is based ***absolutely*** on the scale given above.
- There is ***no*** curve. Multiple studies have shown that grading on a curve disrupts and discourages studying because of the uncertainty of what work will yield what result. Further, fitting grades to a normal distribution would also require ***lowering*** some students' grades, which is *very* discouraging. And perhaps worst of all, curving grades puts students into direct competition with each other; that is not conducive to an effective educational environment. The only person you should be trying to do better than is *yourself from yesterday*.

- Your grade depends solely on your performance on the assignments, the midterm examination, and the final examination. The grading criteria does ***not*** include how much effort you might have expended.
- All grades will be posted on Canvas. It is ***your*** responsibility to keep track of your own ongoing performance throughout the semester and seek guidance from the instructor if your performance drops below a satisfactory level. Do ***not*** wait until it is ***too late***.
- There will be no variations in this policy.

Previous Semester Grade Distribution

The 2020 Spring semester grade distribution was approximately,

A	**32%**
B	**34%**
C	**21%**
D	**9%**
F	**4%**

The percentages for the A, B, and C ranks were actually a bit better than shown because the D and F ranks include some students who stopped coming to class, yet failed to submit the proper *Course Drop* paperwork as well as some who violated the *Honor Code*.

The message to take away here is ***almost 90%*** of the students who applied themselves (and didn't violate the *Honor Code*) earned an A, B, or C. About ***two-thirds*** of the class legitimately earned an A or a B.

Grade Grievances

Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.

General Policies

- ***Your opinion does matter***. All constructive suggestions will be seriously considered. However, suggestions should be applicable to all students in the class and not to a particular group or individual. Please do not ask for exceptions.
- ***Read your email***. All announcements will be communicated via email whenever possible. Ensure that you can receive email from Canvas.
- ***Check Canvas often***. Announcements will also show up on Canvas. Ensure that you have properly adjusted your Canvas notification settings so that you are informed when material is posted to or changes on Canvas. Get in the habit of looking at the Canvas site for this class often in case you somehow miss a notification.

"I didn't know!" is ***not*** a valid excuse for missing requirements or a deadline that is posted on Canvas. You ***will*** be held accountable.

- ***Do not be late***. You are paying a lot for this course. Show up on time and pay attention so you get the value for your tuition.
- **Be *here***. You learn better when you are mentally present. ***Do not*** let yourself be distracted from the material being presented and discussed in lecture by other activities (email, texting, social networks, games, chat, work related to other courses, etc.).
- ***Questions are important***. Ask questions if anything is unclear. A major reason one enrolls in a class is so that one *can* ask questions. (Otherwise, why not just watch a YouTube video?) Pay attention to the questions that others ask and the discussions that follow. It's all part of your education.
- ***No*** special "make-up" work is possible. In the event of a ***documented*** major medical issue and if a student "has satisfactorily completed a substantial part of the coursework", a grade of Incomplete will be given pending the submission of completed work. However, "make-up work" just to "improve one's grade" is not possible.

- Part of the objective of any course is to prepare students for professional life in real world. In the real world there is ***no excuse*** for not knowing the rules and your responsibilities. You are responsible for understanding the rules and carrying out your responsibilities. In the real world if you do not get the job done, nobody will care about the reasons or excuses.
- You are responsible for all material presented during any lecture even if you are absent. If you are not in a lecture, make sure you have a "study buddy" that you can consult about what happened. Establish those relationships ***now*** just in case.
- If your goal is an easy grade or a light load, this is not the class for you.

Attendance

At the University of Texas at Arlington, taking attendance is not required but attendance is a ***critical*** indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance.

While UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course". UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Note

As the instructor of this section, I will ***not*** take attendance. However, I ***strongly*** urge you always to attend lecture. There is no substitute for experiencing the material as it is presented in lecture along with the discussions that invariably occur.

Further, you are ***bound*** by anything that happens or is discussed in lecture, ***even*** if you were not in attendance. Confirming announcements through Canvas will be made whenever possible, but there is ***no*** guarantee that will always happen. If you choose not to attend a lecture, ensure that you get a summary of that lecture from a "study buddy". You ***will*** be held accountable.

Drop Policy

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (https://www.uta.edu/fao/).

Note

The deadline for dropping this class is given in the *Course Schedule and Important Dates* section above.

If you decide to drop this class, *please, please, please* do the paperwork. If you do not do the paperwork and therefore do not properly drop this class, I am ***obligated*** to register a grade for you. That grade will almost certainly be an F since the normal behavior for a student who "disappears" is to stop handing in work and/or miss an examination. It is much easier to file the paperwork to drop the class than to deal with an F that has clobbered your GPA.

Disability Accommodations

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act* (ADA), the *Americans with Disabilities Amendments Act* (ADAAA), and §504 of the *Rehabilitation Act*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the *Student Access and Resource Center* (formerly known as the *Office for Students with Disabilities*). Only those students who have officially documented a need for an accommodation can have their request honored.

Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting the *Student Access and Resource Center* www.uta.edu/disability or calling (817) 272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services (CAPS) (www.uta.edu/caps/ or (817) 272-3671) is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems, and make positive changes in their lives.

Note

As a matter of privacy, there will be no discussion of any disability issues in lecture. Send me an email at brian.dalio@uta.edu and we can discuss such issues privately outside of lecture.

Non-Discrimination Policy

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit UTA's *Equal Opportunity Services* at http://www.uta.edu/hr/eos/.

Note

I have no sense of humor about violations of the Non-Discrimination Policy. None at all.

Any violations of this policy will be dealt with as severely as possible. Period. No exceptions. No warnings. No excuses.

Title IX Policy

The University of Texas at Arlington is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the *Higher Education Amendments* of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the *Civil Rights Act* of 1964 (Title VII), which prohibits sex discrimination in employment; and the *Campus Sexual Violence Elimination Act* (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Michelle Willbanks, Director EOS and Title IX Coordinator, at (817) 272-4585 or titleix@uta.edu.

Note

I have no sense of humor about violations of the Title IX Policy. None at all.

Any violations of this policy will be dealt with as severely as possible. Period. No exceptions. No warnings. No excuses.

Academic Integrity

Students enrolled in all Univeristy of Texas / Arlington courses are expected to adhere to the *UTA Honor Code*.

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the* Honor Code.

UT Arlington faculty members may employ the *Honor Code* in their courses by having students acknowledge the *Honor Code* as part of an examination or requiring students to incorporate the *Honor Code* into any work submitted. Per UT System Regents' Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the *Honor Code*) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at https://www.uta.edu/conduct/.

All students are expected to pursue their academic careers with honesty and integrity. "Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts" (Regents' Rules and Regulations, Part One, Chapter VI, §3, Subsection 3.2, Subdivision 3.22.).

Students found guilty of dishonesty in their academic pursuits are subject to penalties that may include suspension or expulsion from the university.

Examples of what students are ***not*** allowed to do include ...

- Collaborate with others on the material they write.
- Copy all or any part of someone else's work, even if they have permission and/or have modified the work.
- Share or give their work, or even a subset of the work, to another.
- Review another's work, including any work from previous semesters or concurrent sections.

All work turned in for grading must be ***completely*** the student's ***own*** work.

In-Course Penalties

Any student whose work shows sufficient evidence of academic dishonesty will receive a ***-100% score*** for that work (quizzes, assignments, examination, project, etc.) as well as having the ***course grade lowered one full letter grade***. This penalty is assessed *immediately* and in the class itself. Cases will be then be referred to the Office of Student Conduct — ***which may assess its own penalties*** (probation, suspension, expulsion) beyond those already assessed in-class.

These and other applying UTA rules will be ***strictly*** enforced. Any case of academic dishonesty will be treated in accordance with the UTA Handbook of Operating Procedures or the Judicial Affairs. If you do not understand this policy, it is ***your*** responsibility to obtain clarification or any additional information you may require.

Internet "Research"

Students are ***strongly*** cautioned about making use of materials from "helpful" websites. While internet research can be a valuable tool, it is ***incredibly*** dangerous to copy any information from such a source or even to use it as a starting point for one's own solution.

Think about this for a moment.

Not only are such websites well-known (the instructor and TAs are not *entirely* dim), but what happens when *two or more* students just so happen to stumble across the *same* materials and copy it or use it as a starting point? When these students hand in “their” work, it is *indistinguishable* from *plagiarism / collusion* even though the students may have never directly communicated.

Such cases are *always* dealt with as an incidence of *plagiarism / collusion* and *purely* on the basis of the similarity of the submitted materials to each other and on-line sources. You will be subject to the same penalties described above even though you may have never discussed your work with another student.

The safest route *always* is to ***completely*** *develop your* ***own*** *solutions*.

Note

The number one reason students are tempted to violate the *Honor Code* is *bad time management*. That is, a student procrastinates on an assignment or preparing for an examination and the deadline looms ever closer and closer. The student then panics and becomes convinced that the only path remaining is to violate the *Honor Code*.

Do not let this happen to you.

When an assignment is posted to Canvas, download it and read the instructions *immediately*. You don't have to actually *do* the assignment immediately, but you should carefully read the instructions, determine how much work is involved, and when the submission deadline is. You can then plan your time so that you finish your work in advance of the deadline. You will also be able to ask questions in lecture about anything that is unclear.

Similarly, prepare for the midterm and final examinations throughout the semester. Come to lecture, listen carefully, ask questions when anything is unclear, answer the questions posed in lecture, pay attention to the questions others ask and the following discussion, and stay current on the materials as they are presented and posted.

Waiting until the last weekend, the last day, the last hour, the last minute, the last second is a terrible, terrible strategy. Do ***not*** wait until it is ***too late***.

Finally ...

I have no sense of humor about violations of the *Honor Code*. None at all.

Any violations of this policy will be dealt with as severely as possible. Period. No exceptions. No warnings. No excuses.

Electronic Communication

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Campus Carry

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/.

Student Feedback Survey

At the end of each term, students enrolled in face-to-face and online classes categorized as 'lecture', 'seminar', or 'laboratory' are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit http://www.uta.edu/ier/Surveys/SFS/.

Note

The previous paragraph is the standard information from the University about the Student Feedback Survey. As the instructor for this class let me add a personal comment here and say that I value ***all*** feedback highly — whether it is positive ***or*** negative. I ***strongly*** urge every student to complete the survey. All information that comes to me is presented anonymously and I am not informed of the results of the survey until after final grades have been posted. The survey results can have *no* effect on the final grades.

Use the comment box to tell me what worked, what didn't work, what you liked, what you didn't like, what you wanted more of, what you wanted less of, what you wished would have been in the course, what you could have done without, and so forth. I take each comment seriously and use the information provided to adjust how I teach.

Finally, let me observe that a comment along the lines of "*You suck!*" is not useful. However, "*You suck* ***because*** *... !*" could be *very* useful. Please fill in the blanks. Thank you.

Final Review Week

For semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except make-up tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Note

The last assignment in this class is due during the last week of classes. Take this last assignment into account now and plan your time accordingly during the semester.

Emergency Exit Procedures

Should we experience an emergency event that requires us to vacate the building, students should leave the room and move toward the nearest exit. (See the following diagram.) When leaving the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

[Since this class is being given entirely online, there is no “Emergency Exit Procedure” or “Evacuation Plan”.]

Student Support Services

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at (817) 272-6107, send a message to resources@uta.edu, or view the information at https://www.uta.edu/studentsuccess/success-programs/programs/resource-hotline.php.

University Tutorial and Supplemental Instruction

UTSI (Ransom Hall 205) offers a variety of academic support services for undergraduate students, including 60 minute one-on-one tutoring sessions, Start Strong Freshman tutoring program, and Supplemental Instruction. Office hours are Monday-Friday 8:00am-5:00pm. For more information visit www.uta.edu/utsi or call (817) 272-2617.

IDEAS Center

The IDEAS Center (2nd Floor of Central Library) offers ***free*** tutoring to all students with a focus on transfer students, sophomores, veterans, and others undergoing a transition to UT Arlington. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

Library Info

Subject Librarians	http://www.uta.edu/library/help/subject-librarians.php
Database List	http://www.uta.edu/library/databases/index.php
Course Reserves	http://pulse.uta.edu/vwebv/enterCourseReserve.do
Library Tutorials	http://www.uta.edu/library/help/tutorials.php
Connecting from Off-Campus	http://libguides.uta.edu/offcampus
Ask A Librarian	http://ask.uta.edu

The following URL houses a page where we have gathered many commonly used resources needed by students in online courses: http://www.uta.edu/library/services/distance.php.

The subject librarian for your area can work with you to build a customized course page to support your class if you wish. For examples, visit http://libguides.uta.edu/os and http://libguides.uta.edu/pols2311fm . If you have any questions, please feel free to contact Suzanne Beckett, at sbeckett@uta.edu or at (817) 272-0923.

FAQ

Q. You gave me a grade of ...

A. Stop right there. Instructors do not ***give*** grades. Students ***earn*** grades. If you want to ***earn*** a particular grade, ensure that you successfully do the work required to ***earn*** it. It is ***your*** responsibility. Do ***not*** wait until it is ***too late***.

Q. It's getting late in the semester and my grade is low but I *really* need a grade of X because of <*insert truly sincere and heartbreaking reasons here*>. What can I do?

A. Invent a time machine and go back to the beginning of the semester and ensure that you do well enough on all of the work for this course so that your semester average exceeds the threshold for grade X. Seriously, there is no other option. It is ***your*** responsibility to track your performance ***during*** the semester to ensure that this issue does not arise. Do ***not*** wait until it is ***too late***.

Q. I am supposed to graduate this semester and my grade is too low / I submitted an assignment late (or that crashes or that goes into an infinite loop or ...) and got no credit / I did badly on an assignment / I did badly on the midterm examination / I did badly on the final examination / I did badly on a project / ... . Can I do some “extra work” to get my grade up enough to graduate?

A. No. It is ***your*** responsibility to stay focused on your class work even if you expect to graduate this semester. Do ***not*** falter in your last semester. Do ***not*** wait until it is ***too late***.

Further, the grade you *earn* in this class represents your performance *in this class* and *in this class alone*. “Needing” to graduate does not have the slightest effect on the grade you *earn* here.

Q. I made a mistake and submitted a wrong file or files for an assignment. Can I submit it after the deadline?

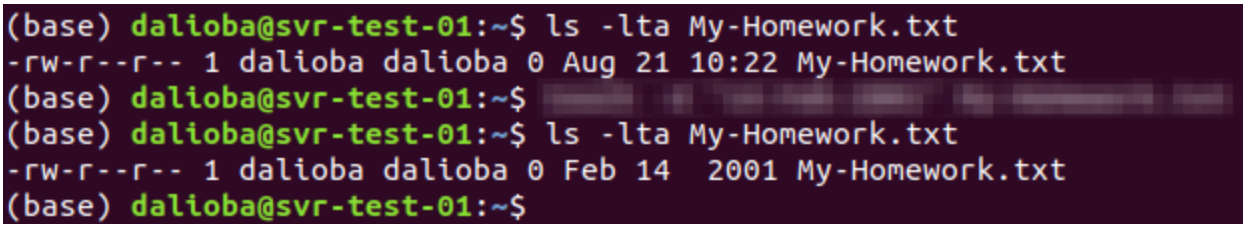
A. No. You can submit assignments as many times as you want before the deadline. After the deadline, the assignment is graded ***as submitted***. It is ***your*** responsibility to verify that your submission is correct ***before*** the deadline expires. Do ***not*** wait until it is ***too late***.

By the way, this is a common way to ***fail*** an assignment. It can be avoided ***completely*** by checking your submission after you upload it. Just download from Canvas what you submitted into an empty directory and re-check and re-test it to confirm that it is what you *thought* you submitted.

Q. I didn't make the deadline for a submission, but I have a screenshot showing that the files have a timestamp before the deadline. Will you accept that?

A. No. It is ***your*** responsibility to make your submission on Canvas ***before*** the deadline expires. Do ***not*** wait until it is **too late**.

By the way, timestamps are *meaningless*. Consider this example. The file `My-Homework.txt` was created `2020 Aug 21 10.22` , but — after a slight manipulation — its last-edit date has been changed to Valentine's Day nineteen years ago. Ha, so much for screenshots of timestamps!



(Bonus question: what's the command that's been blurred out?)

Q. My submission was only one month / one week / one day / one hour / one minute / one second / one microsecond / ... late. Won't you accept it anyway?

A. No. It is ***your*** responsibility to make your submission on Canvas ***before*** the deadline expires. Do ***not*** wait until it is ***too late***. Submissions that are late are worth ***zero credit***.

If you are the kind of person who procrastinates, pretend the submission deadline is one hour / one day / one week / ... *before* the actual deadline and aim for that instead.

Q. I made multiple submissions for an assignment. I am certain that one of them works at least *somewhat*. Won't you pick through all the submissions that I made and find the one that works best and evaluate it?

A. No. The *last* submission that you make is the one that is evaluated. Ensure that the *last* submission that you make is your *best effort* so you have a chance for maximal credit.

By the way, if your *last* submission is *late*, your submission is worth ***zero credit*** even if you have previous submissions that are *before* the deadline. Do not make the mistake of trying to make “one last submission” near the submission deadline. You can make as many submissions as you want, but it will always be the *last* one that is evaluated. ***Do not be late with it.***

Q. My submission doesn't compile / core dumps / crashes / goes into an infinite loop / ... but since I did write *some* code, won't you give me at least *some* partial credit?

A. No. Even partial credit requires that your submission compiles without warnings or errors and runs without crashing, core dumping, or going into an infinite loop. If it doesn't, it is worth ***zero credit***.

Q. You gave me zero credit for my submission because it violated one (or more) of the requirements. It works perfectly, so how can it be worth zero credit?

A. First, I did not *give* you zero credit; you *earned* zero credit by violating the requirements for the assignment.

Second, it's not enough that your submission “works perfectly”, it has to “work perfectly” within the constraints of the assignment. For example, in a Computational Methods class, an assignment to write a square root routine would include the requirement that you can not use any routines from the math library. After all, the point of the assignment is that *you* write the routine. If your submission uses, e.g., `exp()` or `ln()` or `sqrt()`, it might generate the same answers as a correct solution, but it would not be “working perfectly” and would be worth zero credit.

Please, please, please read each assignment's instructions *carefully* so you are aware of what is and what is not permitted. Restrictions, constraints, requirements, etc. are there for a reason and must be honored by your submission. If not, your submission will *earn* ***zero credit***.

Q. I don't plan on attending classes. Will you send me emails summarizing anything important that happens in class?

A. No. It is ***your*** responsibility to stay abreast of anything that happens in class. If you choose not to attend, ensure that you get the information from someone who did. Do ***not*** wait until it is ***too late***.

Further, just because attendance is not taken, do ***not*** take that as *approval* for not attending class. You are doing yourself a ***grave*** disservice if you do not attend. The fewer lectures you attend, the lower the grade you are likely to ***earn***.

Q. I have plans in the middle of the semester that will cause me to miss an assignment / the mid-term examination. Will you make special arrangements to accommodate this?

A. No. It is ***your*** responsibility to plan your semester so that you do not miss class / an assignment / the mid-term examination. There's plenty of time to do so. Do ***not*** wait until it is ***too late***.

Q. I have plans that will cause me to miss the end of the semester / the last assignment / the final examination. Will you make special arrangements to accommodate this?

A. No. It is ***your*** responsibility to plan your semester so that you do not miss class / the last assignment / the final examination. There's plenty of time to do so. Do ***not*** wait until it is ***too late***.

> **Q.** I have some questions but they're not about this class. Can I still talk to you?

> **A. *Yes***. Feel free to send me an email if you want to discuss *anything*. I give priority to those students that have issues with the class material (especially just before assignments are due), but otherwise I am open to discussing anything you want.

Course Topics

Two-dimensional Concepts

- Translation
- Rotation
- Scaling
- Shearing
- Composite transformations
- Homogeneous coordinate systems
- Matrix representations
- Window to viewport mapping
- Line clipping

Mathematics for 3D Computer Graphics

- Parametric equations
- Plane equations

3D Transformations

- Translation
- Rotation
- Scaling
- Shearing
- Composite transformations
- Homogeneous coordinate systems
- Matrix representations

Viewing in Three Dimensions

- Orthographic parallel projections
- Oblique parallel projections
- Perspective projections
- Mathematics of 3D projections

Three-dimensional Representations of Curved Surfaces

- Polygon meshes
- Bézier curves and surfaces

- Hermite curves
- Spline curves and surfaces

> ***As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. — Brian A. Dalio***

Emergency Information

In case of an on-campus emergency, call the UT Arlington Police Department at **(817) 272-3003** (non-campus phone) or **2-3003** (campus phone).

You may also dial **911**.

The UT Arlington Police Department *non-emergency* number is **(817) 272-3381**.

UT Arlington Police Department *Silent Witness* information at https://police.uta.edu/contact/report-a-crime/silent-witness.php.