1. **Course Content:** This is a graduate course in the preparation and display of scientific data. The course will focus on methods for the functional transforms that enable visualization of properties embedded within data. This will include the lighting of objects, texturing objects, rendering of properties such as stress forces, direction of flows, and object surface phenomena such as temperature, air pressure, and rainfall.

2. **Course Objectives:**
   - Be familiar with a graphics rendering language/package
   - Understand rendering, lighting, and texturing of 3D objects
   - Know options available for visualizing 1D and 2D data
   - Understand how to visually express abstract properties such as flows, diffusion, stress points, etc.
   - Understand relevant, renderable abstractions of objects of dimensionality greater than 3

3. **Prerequisites:** Students planning to enroll in this course should have a basic knowledge of data structures, a programming language (C, C++, or Python), and basic calculus. You should have been exposed to the following:
   - Scalars, vector algebra, and tensors (matrices)
   - Low-order derivatives of multivariate functions
   - Discrete probability

4. **Tentative Schedule:**
   (b) Jan. 25-Jan. 31. Week 3: Overview of the visualization pipeline [Chapter 4]
   (d) Feb. 15-Feb. 28. Weeks 6-8: Vector visualization – divergence and vorticity, glyphs, coloring, more on texture, [Chapter 6] **MidTerm Exam Tentatively Scheduled**
   (f) Mar. 15-Mar. 28. Weeks 12-13: Other topics, if time, including special data sets such as images [Chapters 8-10]
   (g) Mar. 29-Apr. 11. Weeks 14-15: ??
   (h) Apr. 12-26. Week 16 - Review

6. Course Announcements and Assignments will be posted on CANVAS.

7. Evaluation:
   - **25% Midterm (to be done individually), 30% Final (to be done individually);**
   - **35% Group Exercises;**
   - **10% Class exercises (to be done individually). Class exercises will be graded on the basis of submitted or not but the answers will be discussed in class. Missed quizzes cannot be made up.**

   Group membership will be determined by the instructor and the TA.

8. Academic Integrity Standards in this course are consistent with UNT policy: STUDENT STANDARDS OF ACADEMIC INTEGRITY (18.1.16), or other related/existing UNT policies. The work that you turn in to be graded, including any underlying ideas, must be your own individual work. Usage of unauthorized material and sources, or depending on any unauthorized assistance, to answer homework problems, test questions, writing reports, or carrying any type of assignment, etc., without the permission of the instructor, or without complete and accurate and complete attribution/citation of the source, when applicable, is viewed as an academic misconduct.

   **Cheating policy:**
   - You can use any publicly available resource, including code snippets, so long as you cite the source. You cannot use resources from sites that you or others have to pay to access (such as Chegg etc.)
   - Not citing the source is CHEATING
   - Using information from a homework helper site is CHEATING
   - Duplicating/nearly duplication answers from another student/another groups submission is CHEATING
   - First Offence: 0 for the entire submission
   - Second Offence: F for the course

9. Policy for working in groups:
   When working in groups, you can distribute the work among group members. However, if your name is on the submission you are responsible for the submission. This means
   (i) you should be able to explain the algorithm/code/logic of the solution for all parts of the project even if you were not directly involved in implementing it
   (ii) if any group member cheats, the entire group will be penalized

   With the first few assignments, your group membership will be determined for you. After the first several assignments, you will “self-organize” into groups, changing members at will. The only constraint is that there can be no more than 4 people per group

10. No points will be deducted for the first day (weekends included) of late submission of an assignment. 10 points will be deducted after one day and before one full week. After that you have one more week to submit the assignment for a 20-point penalty. No assignment will be accepted after two weeks following the due date.
<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICE HOURS</th>
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| Saba Yousefian Jazi | Wednes. 2:00-3:00pm
                      Thursday 2:45-3:45pm | SabaYousefianJazi@my.unt.edu | (see next row)                         |
|                 |                               |                                | [https://unt.zoom.us/j/2179400196?pwd=MnyvUXBhTlhrL09uVvZkZBVkx2MUlzZz09](https://unt.zoom.us/j/2179400196?pwd=MnyvUXBhTlhrL09uVvZkZBVkx2MUlzZz09) |
|                 |                               |                                | Meeting ID: 217 940 0196
                      Passcode: CSCE5320 |
| B. Buckles      | Tuesday 5:30-6:30pm
                      Friday 3:30-4:30pm | bill.buckles@unt.edu | [https://unt.zoom.us/j/3097198944](https://unt.zoom.us/j/3097198944) |

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