CS 4830 Sec. A Time: TR @ 8:00AM-9:15AM, Location: TBD

Course title: Computer Graphics, Fall 2015

Instructor: Dr. R. Paul Mihail, 2119 Nevins Hall, Email: **rpmihail@valdosta.edu**

Class meeting times and location: Nevins Hall, Room 1207, TR from 8:00 AM to 9:15AM

Office Hours: TR 12:00pm-3:00pm.

Required Textbook: Interactive Computer Graphics : A Top-Down Approach with WebGL, Seventh Edition by Edward Angel and Dave Schreiner, Publisher: Pearson, ISBN10: 0133574849, ISBN13: 978-0133574845.

Software and Hardware: You need a WebGL capable device and browser.

Course Description: This course will cover the fundamentals of computer graphics using modern, programmable, graphical processing units (GPUs) in the context of game programming. The main topics include the graphics pipeline, 3D graphics programming and essential topics such as: cameras, lighting, rendering, modeling and visualization. Advanced topics, such as raytracing, caustics, volumetric and photo-realistic rendering will be introduced if time permits. While computer graphics will be the main focus, game development concepts will be introduced in parallel. Game development specific topics include the game loop, real-time user interaction, non-traditional input devices, sound programming and basic AI if time permits.

Learning Outcomes: Students will understand basic concepts and techniques from computer graphics. More specifically students will:

1. Have a basic understanding of the core concepts of computer graphics.
2. Understand and apply geometric transformations.
3. Understand the modern graphics pipeline.
4. Be capable of using WebGL to create interactive computer graphics.
5. Understand the game loop and use standard input devices for control.
6. Develop simple games using WebGL.

Course Prerequisites: Data structures with a grade of "C" or better.

Assessment:
The grade for this course will be calculated as follows:

- Assignments: 45%

- Attendance: 10%
- Midterm exam: 20%
- Final project (demo and code): 25%

Grades will be assigned according to the following scale:

90-100% = A
80-89.99% = B
70-79.99% = C
60-69.99% = D
Below 60% = F

Exams:

- Final exam: Tuesday, December 9th from 8:00AM-10:00AM.

What to do if you miss...

- **a lecture** - find out what the material covered was, read the book, borrow someone's notes, find out what any announcements or assignments were. If attendance was taken and you have a documented excuse as described in the attendance policy, contact your professor within one week of your absence.
- **a test** - if you know ahead of time you must miss a test, contact your instructor and make arrangements for an alternate time. If circumstances force you to miss an exam unexpectedly, you MUST contact your instructor within a week after the test, in order to have a chance to be allowed to make the exam up.
- **a deadline on an assignment** - homework assignments are due before the datetime stated on the prompt. You are entitled to 3 free days throughout the course. The late penalty is 15% per day for assignments.

Academic Honesty:

Students are expected to do their own work. Cheating is considered a serious offense by the University. Any form of "seeking an unfair academic advantage" is considered cheating. If an assignment is designated as "cooperative learning" or "partner work", then you are allowed, encouraged, in fact required, to work with your partner or team. These are the ONLY students you are allowed to work with. Of course you can still ask questions of your instructor. Any other assignment is individual work. That includes programs, lab tests, lecture tests, and quizzes.

If you would agree that "he/she and I worked together" on an assignment and fail to cite that person, then we would consider it cheating. It is acceptable to discuss high level concepts with someone. If that person contributes to your understanding, it is **required** you cite (on paper) as having conversed with or otherwise cooperated with that person. Describe exactly how that person helped you. If you fail to do that, both (SOURCE and RECIPIENT) will receive an F for that assignment. The second offense will result in failure of the course.

It is just as dishonest to allow someone to represent your work as their own as to do the reverse. This also means YOU are responsible for making sure that your work not accidentally fall into someone else's hands. Don't leave flash drives, papers or printouts in a lab; don't leave source code files on a hard drive somewhere. Be aware that files that you put on the local hard drive (C or D or E) in a computer lab on campus STAY there until they are deleted. They do NOT automatically go away when you log out! If someone else finds your code and turns it in, YOU are responsible too!

Do not post your solutions on the Internet. This is an open invitation for someone else in the class to copy it and turn it in as theirs! If you get help from a person who is not in the class, be extremely careful. Do not take code from anyone! Make sure the help you get is using the material covered in THIS class. You can be penalized in this situation also. If you work with a tutor, make sure you understand what the tutor is telling you. If they just "transplant" code into your program, you are being cheated of the understanding you need to do the next program and to take the Lecture tests. This is also considered cheating. All programs may be checked by plagiarism detection software.

Withdrawing:

If you decide to leave the class, please do it officially. There is a date on the Academic Calendar past which you are not allowed to drop for academic reasons. We'd much rather give a W grade than an F. Don't just stop coming to class - you WILL get an F! Take care of your transcript! All policies associated with this course are subject to revision. Reasonable notification will be provided to students prior to any major changes.

New Withdrawal Policy (5 W Policy): Effective Fall 2010, all undergraduate students are limited to five course withdrawal (W) grades for their entire enrollment at Valdosta State University. Once a student has accumulated five W grades, all subsequent withdrawals (whether initiated by the student in BANNER or initiated by the instructor on the proof roll) will be recorded as WF. The grade of WF is calculated as an F for GPA purposes. To get more details about this policy, students are strongly recommended to check the following link:
http://www.valdosta.edu/academic/WithdrawalPolicy.shtml

Extra Help: Do not hesitate to come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course. There are also tutors available Monday through Friday, see Mr. Said Fares (office in 1126 Nevins Hall) for more information. There is also the Student Success Center on campus located on the ground floor of the Langdale Residence Hall. The Student Success Center offers free one-on-one tutoring for core courses, success workshops, etc. You can find more information at http://www.valdosta.edu/academics/student-success-center/.

Attendance Policy: Please keep in mind that attendance is extremely important for this course. You are expected to show up for lectures and participate. In case you have to miss class, please make sure you ask for notes or see your professor. If you have a valid university excuse, please notify your professor as soon as possible.

Accommodation for Disabilities: If you have a documented disability that requires academic accommodations, please contact your professor as soon as possible. In order to receive accommo-

dations in this course, you must provide a Letter of Accommodation from the Access Office for Students with Disabilities located in Farver Hall. The phone numbers are 229-245-2498(V/VP) and 229-219-1348(TTY). Accommodations can be made for all parts of the course. We only make special arrangements for class activities after we receive the letter.

Student Opinion of Instruction: At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available on BANNER. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous to instructors/administrators. Instructors will be able to view only a summary of all responses three days after they have submitted final grades. While instructors will not be able to view individual responses or to access any of the data until after final grade submission, they will be able to see which students have or have not completed their SOIs, and student compliance may be considered in the determination of the final course grade. These compliance and non-compliance reports will not be available once instructors are able to access the results. Complete information about the SOIs, including how to access the survey and a timetable for this term is available at http://www.valdosta.edu/academic/OnlineSOIPilotProject.shtml.