**CSC 475/592 Spring 2017 Course Syllabus** Section 003 Lecture TR 2:00-3:15 pm  
  
**Instructor:** Dr. Toni Pence([pencet@uncw.edu](mailto:pencet@uncw.edu))  
Office: CI 2041,

Office Hours: 11:30am – 1:30 PM Tuesday/Thursdays or by appointment.

**Online Textbook:** Steven M. LaValle, [Virtual Reality](http://msl.cs.uiuc.edu/vr/), 2016

**Course Description:** Virtual reality (VR) technology transports us to real or synthetic places that may be inaccessible, breathtaking, complex beyond our wildest imagination, or just simple and relaxing. Applications include entertainment, social interaction, virtual travel, remote training, architectural walkthroughs, cultural appreciation, and learning enhancement.

Although VR has been around for decades, it always came with a high cost to enter the field because of advanced, expensive equipment and computing resources. Thanks to widespread progress in display, sensing, and computational technology, the newest VR systems are cheap, lightweight, and easy to program. This has caused a flood of excitement as almost anyone can pick up a VR headset and start developing experiences.

**Course Objectives:** The purpose of this course is to provide students with both a deep understanding of the fundamentals of VR and to gain practical experience. Because VR tricks our brains by presenting synthetic stimuli to our senses, it is extremely challenging to develop and analyze VR systems that are both effective and comfortable. To get a handle on these issues, this course will fuse together knowledge from a variety of relevant topics, including computer graphics, tracking systems, and perceptual psychology. Some basic questions that motivate the course topics:

* How does one build a good VR experience?
* How do VR systems work using current technology?
* What is wrong with current systems?
* How does the human body respond to VR?
* What fundamentals could help you to shape the future?

**Course Topics:**

* Overview and perspective on virtual reality
* Human sensation and perception
* Engineering VR systems
* Perceptual training
* Building good experiences

**Prerequisites:** This is a large, experimental course on a popular topic. I expect students to come with a variety backgrounds and I do not demand they have had particular background courses. It is important for you assess whether you can handle the material. I highly suggest that you have completed CSC 331. You are responsible for gaining any knowledge you may be lacking.

**Course Requirements and Assignments:**

You are expected to take an active role in your learning. Please keep up with the suggested reading and turn assignments in on-time.

***Assignments:*** (20%)There will be 4 to 5 smaller assignments throughout the semester, in addition to the group project.

***Group Project:*** (40%) There will be one large group project. Your group will be responsible for designing, implementing, and evaluating a complete VR experience.

***WITX Testing and Demo:*** (10%) You must demo your group project at the WITX 2017 conference held here at UNCW on Monday April 10th. Usually starts around 5pm.

***Tests:***(20%) There will be 2 in class tests. Each test is worth 10%.

***Final Exam:*** (10%) Demo and submission of final project. The final exam will be held on Thursday, May 4th, 2017 from 3:00 – 6:00 pm.

***Masters Students:*** In addition to the undergraduate work, you will be required to hold the role of Project Manager for 2 of the group projects. You will also have 1 or more smaller individual assignments.

**Grades:** I will post all grades on Blackboard. If you have questions about your grade, or how the grading works, please talk to me. ***You have one week from when a grade is returned to dispute it.***

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| **Numeric Score** | **Letter Grade** |
| **93-100** | A |
| **90-92** | A- |
| **87-89** | B+ |
| **83-86** | B |
| **80-82** | B- |
| **77-79** | C+ |
| **73-76** | C |
| **70-72** | C- |
| **67-69** | D+ |
| **63-66** | D |
| **60-62** | D- |
| **0-59** | F |

**Attendance:** I will randomly take attendance, and it may count towards your participation score. However, if you do not show up for class, do not expect me to reteach the class in office hours or through email, **unless** the absence was excused. Please let me know beforehand if you will miss class (excused or unexcused) and I will try to get you the materials ahead of time.

**Academic Dishonesty:**  It is the responsibility of every student to uphold and maintain the [UNCW Academic Honor Code](http://www.uncw.edu/fac_handbook/responsibilities/teaching/honor_code_print.htm) (see Student Handbook). You violate the honor code when you represent someone else's work as your own. Programming assignments may be discussed at a conceptual level with other students but details and coding must be your own. Copying and team collaboration is prohibited. Generally, it is okay to ask a classmate for help, but *not* to share code with each other (copy/paste).

You are expected to do your own work, since the material you will be learning in this class will be necessary for the next class. If you are found to have cheated, you will receive a 0 for the assignment and I will report any cheating to the Academic Integrity Committee.

**Students with disabilities:** If you have a disability and need reasonable accommodation in this course, you should inform me of this fact in writing within the first week of class or as soon as possible. If you have not already done so, you must register with the Office of Disability Services in Westside Hall (extension 3746) and obtain a copy of your Accommodation Letter. You should then meet with me to make mutually agreeable arrangements based on the recommendations of the Accommodation Letter.

**Title IX Statement:** UNCW takes all forms of interpersonal violence very seriously. When students disclose, first- or third-hand, to faculty or staff about sexual misconduct, domestic violence, dating violence and/or stalking, this information must be reported to the administration in order to ensure that students' rights are protected, appropriate resources are offered, and the need for further investigation is explored to maintain campus safety.

There are three confidential resources who do not need to report interpersonal violence: UNCW CARE, the Student Health Center, and the Counseling Center. If you want to speak to someone in confidence, these resources are available, including CARE's 24-hour crisis line (910-512-4821). For more information, please visit [www.uncw.edu/sexualmisconduct](http://www.uncw.edu/sexualmisconduct) or [www.uncw.edu/care](http://www.uncw.edu/care).

\*This syllabus is subject to change, but only with sufficient notification.