ARTV-2471 | 3D Lighting & Surfacing

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section 001

course time Tuesdays & Thursdays 9:00am – 12:55pm

location NRG-3134

instructor Sara Farr

office hours Monday-Thursday 1:00pm-2:00pm

appointments Fridays

office location NRG-3135

phone (512) 223-4802

e-mail sfarr@austincc.edu

department site http://www.viscom.austincc.edu/

instructor site http://www.viscom.austincc.edu/sfarr/online/

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Course Description
A studio course focused on 3D lighting and surfing techniques using industry standard software. Topics covered include the relationship between surface and light; the effects of lighting and surfing on a 3D scene; types of lights and shadows; surface qualities, textures, and mapping; and industry lighting techniques, including recreating real-world lighting. Students will also learn lighting & surface design and workflow management.

Course Rationale/Objectives
This course is aimed at students seeking an Associate of Applied Science or VisCom certificate with a Game Art specialization, as well as those interested in pursuing a career in digital 3D imaging and animation. This is an intermediate level course focusing on a variety of lighting and surfing tools for Game Art. It is a prerequisite for: GAME 2477 Technical Art Explorations

Course Prerequisites
- ARTV 1445 3D Modeling & Rendering
- ARTV 1472 Digital Painting (Prerequisite: ARTC 1409 Basic Illustration)

Required Texts & Materials
During the semester, you will be required to have a pencil or pen, and a 3-ring notebook with paper and pockets (in which to keep notes, exercises, projects and information sheets).
You will also need to provide a temporary backup of your coursework (Flash Drive or External hard drive), and at least one blank DV-R to provide a permanent backup of both your working files and final output files.

**Required Textbooks:**
- “Digital Lighting & Rendering” by Jeremy Birn
- “Texturing: Concepts & Techniques” by Dennis Summers

**Instructional Resource:**
- Autodesk 3DS Max
- Pixologic ZBrush
- Adobe Photoshop

**Student Learning Outcomes**
Upon successful completion of the course, the student will be able to analyze, define and recreate real-world lighting and surfaces digitally and for a game. Students will be able to use different light types, global illumination, in-game shaders, image mapping and layered surfaces. Skills learned include lighting techniques for subjects and their environment, surface channel texturing, and UV-mapping. Students will also be able to design and manipulate lighting to create mood and emotion, as well as direct the viewer’s focus.

**Program-Level Student Learning Outcomes:**
1. Identify and apply principles of design and modeling
2. Independently solve modeling problems.
3. Produce and integrate art assets based on current industry trends and practices.
4. Design art assets that reflect personality, atmosphere and emotional tone.
5. Collaborate within a team environment.

**SCANS competencies (for workforce courses)**

**SCANS (Secretary’s Commission on Achieving Necessary Skills)**

A high performance workplace requires workers to not only have basic literacy, math, and personal skills, but also specific competencies – including the ability to manage resources, work well with others, research and process information, master complex systems and a variety of technologies. This list summarizes the SCANS skills and competencies addressed in this course.

1 - RESOURCES
   1.1 Manages Time

3 - INFORMATION
   3.1 - Acquires and Evaluates Information
   3.2 - Organizes and Maintains Information
   3.3 - Uses Computers to Process Information

4 - SYSTEMS
   4.1 - Understands Systems
   4.2 - Monitors and Corrects Performance
   4.3 - Improves and Designs Systems

5 - TECHNOLOGY
   5.1 - Selects Technology
   5.2 - Applies Technology to Task
   5.3 - Maintains and Troubleshoots Technology

6 - BASIC SKILLS
   6.1 - Reading
Instructional Methodology
This course is a 4 credit hour, 11-week Lecture-Lab course in advanced techniques for three-dimensional (3D) Lighting and Surfacing. Each class takes up approximately 4 of those hours. During each class, the instructor will present new information (lecture) and supervise assigned work to help students develop their animation skills (lab). Solutions to individual student problems are demonstrated for the entire group. The instructor’s ability to evaluate students’ progress is founded on observing their productivity in class as well as the quality of their work.

Grading System
Each assignment in this course will be graded individually on a 5 point scale with all grades being averaged into 1 final grade at the end of the semester. Point values for letter grades are as follows:

0.0 – 1 = F
1.1 – 2 = D
2.1 – 3 = C
3.1 – 4 = B
4.1 – 5 = A

Final grades will be calculated as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercises</td>
<td>20%</td>
</tr>
<tr>
<td>Projects</td>
<td>40%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>30%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>10%</td>
</tr>
</tbody>
</table>

Student Evaluation
A) This course builds the student’s 3D lighting & surfacing skills through a series of exercises, each with assigned objectives and criteria.

- The exercises are designed to introduce the student to new techniques &/or principles, keyboard shortcuts, and vocabulary
  - These are graded using one scale (Focus). Each scale awards 4–0 points based on the student’s effort to meet the exercise criteria (Superior – Unacceptable), for a total of 4 possible points per lesson.
All projects are graded using **four scales** (Focus, Principles, Craftsmanship, & Creativity). Each scale awards 4-0 points based on the student’s effort to meet the exercise criteria (Superior – Unacceptable), for a total of **16 possible points per project**.

- **Focus** – ability to follow directions, make an effort to meet exercise objectives, work hard in & out of class, and complete the work on time.

- **Elements & Principles of Design** – ability to understand and demonstrate the use of the elements & principles of design, including additional consideration for design in 3D space.

- **Craftsmanship & Technique** – *Craftsmanship* is aptitude, skill, and manual dexterity in use of media and tools – knowledge of interface & keyboard shortcuts, correct use of tools without the aid of notes, correct use of vocabulary. *Technique* is the manner and skill in which the student uses the tools to achieve the chosen effect – efficient use of geometry [no duplicate, hidden, or wasted geometry], proper use of surfaces [no Default surfaces; correct settings or textures in the appropriate surface channel], & well-organized files with properly placed pivots, labeled layers, and file type extensions.

- **Creativity, Inventiveness, and Independence** – ability to find unique solutions to assignment, elaborate on assigned theme, transfer concepts/techniques from previous exercises, work through problems/difficulties, originality of style & idea, and the ability to work independently.

**B) Quizzes**: In addition to the exercises and lessons, students will be given 3 – 4 quizzes to evaluate their knowledge and understanding of basic terms, definitions and concepts.

**C) “Class Participation”** is a combination of participation in class reviews/critiques, questions during lectures and work time, and helpfulness towards the instructor and other students.

**Passing Grade Policy** - Effective September 2005, D’s are not accepted as a passing grade within the Visual Communication Department courses. Students receiving a grade of D must retake the course to receive credit and to progress to the next level course. Students who made a D prior to September 2005 will be allowed to proceed to the next level course.

**Course Policies**

**Attendance/Participation** - Regular and punctual class and laboratory attendance is expected of all students. If attendance or compliance with other course policies is unsatisfactory, the instructor may withdraw students from the class.

If for any reason you’re unable to come to class, you will be counted as absent. You are allowed 4 absences. There is no distinction between an excused or unexcused absence, so use your absences meaningfully and sparingly. You are counted absent if you:

- are not in class
- leave the class early
- get to class extremely late

At your fifth absence, you will fail the class and should withdraw from the course. If your fifth absence happens past the final withdrawal date of the semester, then your final grade will be lowered one letter
grade for each subsequent absence. If you decide to withdraw from the course, it is your responsibility to officially withdraw yourself from the class through admissions and records. If you do not withdraw from the class, you will receive an F.

Instructor's Communication Policies

- I will answer emails by noon of each weekday. If I get your email after noon, you will get a response from me on or before the following noon. I will not normally answer emails over the weekend from 5:00pm Friday to 8:00 am Monday.
- I will only answer questions from your official ACC email account to mine.
- I will grade your project within two class days of due date.

Naming Convention -- Following a prescribed naming convention is important. Use your last name, then an underscore, then the name of the exercise or project. Everything submitted to the Andromeda server must use this naming convention. For instance, the first project of the semester submitted by John Doe would be named:
- Doe_Backpack.ztl
- Doe_Backpack.max
- Doe_Backpack.psd
- Doe_Backpack_D.tga
- Doe_Backpack_S.tga
- Doe_Backpack_N.tga

Withdrawal - It is the responsibility of each student to ensure that his or her name is removed from the roll should he or she decide to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records.

Students who enroll for the third or subsequent time in a course taken since Fall 2002, may be charged a higher tuition rate, for that course. State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog - http://www.austincc.edu/cataloghtml/policies.php.

Missed or Late Work - Assignments are due at the beginning of class periods. If turned in after that, the project is late. I will lower a project one letter grade for each class day that it is late.

Incomplete - An instructor may award a grade of "I" (Incomplete) if a student was unable to complete all of the objectives for the passing grade in a course. An incomplete grade cannot be carried beyond the established date in the following semester. The completion date is determined by the instructor but may not be later than the final deadline for withdrawal in the subsequent semester. The department chair will approve a change from I to a performance grade (A, B, C, D, or F) for the course before deadline.

An incomplete (I) will be granted to a student in extremely rare circumstances. Generally, to receive a grade of I, a student must have completed all examinations and assignments to date, be passing, and have personal circumstances that prevent course completion that occur after the deadline to withdraw with a grade of W. Consideration should be given to course load, job, and family obligations when carrying an I into a new semester for completion. An "I" that is not resolved by the deadline will
automatically be converted to an F.

In extreme cases, students may receive permission to carry an I for longer than the following semester or session deadline. Approval must come from the instructional dean.

**Scholastic Dishonesty** - A student attending ACC assumes responsibility for conduct compatible with the mission of the college as an educational institution. Students have the responsibility to submit coursework that is the result of their own thought, research, or self-expression. Students must follow all instructions given by faculty or designated college representatives when taking examinations, placement assessments, tests, quizzes, and evaluations. Actions constituting scholastic dishonesty include, but are not limited to, plagiarism, cheating, fabrication, collusion, and falsifying documents. Penalties for scholastic dishonesty will depend upon the nature of the violation and may range from lowering a grade on one assignment to an “F” in the course and/or expulsion from the college. See the Student Standards of Conduct and Disciplinary Process and other policies at [http://www.austincc.edu/current/needtoknow](http://www.austincc.edu/current/needtoknow)

**Copyright** – The software programs used in the labs are licensed to the college, which is the original purchaser. Thus students cannot duplicate the software for their personal use. Do not use college equipment to duplicate software for other students or to produce work-for-profit.

Do not download, copy or scan copyrighted material for use in your projects unless it meets the Fair use guidelines below and the copyright holder is properly credited.

Fair use is an important element of U.S. copyright law that allows for the use of copyrighted work without asking permission of the copyright holder, especially when the copyrighted work is used for criticism, scholarship, and education. Under the Fair Use guidelines students may:

Incorporate portions of copyrighted materials when producing a project for a specific course; and
Perform and display their own projects and use them in their portfolio or use the project for job interviews or as supporting materials for application to other schools.

For more information on Fair Use see [http://en.wikipedia.org/wiki/Fair_use](http://en.wikipedia.org/wiki/Fair_use)

**Student Rights and Responsibilities** - Students at the college have the rights accorded by the U.S. Constitution to freedom of speech, peaceful assembly, petition, and association. These rights carry with them the responsibility to accord the same rights to others in the college community and not to interfere with or disrupt the educational process. Opportunity for students to examine and question pertinent data and assumptions of a given discipline, guided by the evidence of scholarly research, is appropriate in a learning environment. This concept is accompanied by an equally demanding concept of responsibility on the part of the student. As willing partners in learning, students must comply with college rules and procedures.

**Privacy policy** - The Family Educational Rights and Privacy Act protects confidentiality of your educational records. Grades cannot be given over the phone, posted, over non ACC e-mail, or through a fellow student.

**Statement on Students with Disabilities** - Each ACC campus offers support services for students with documented disabilities. Students with disabilities who need classroom, academic or other accommodations must request them through the Office for Students with Disabilities (OSD). Students are encouraged to request accommodations when they register for courses or at least three weeks before the start of the semester, otherwise the provision of accommodations may be delayed.
Students who have received approval for accommodations from OSD for this course must provide the instructor with the ‘Notice of Approved Accommodations’ from OSD before accommodations will be provided. Arrangements for academic accommodations can only be made after the instructor receives the ‘Notice of Approved Accommodations’ from the student.

Students with approved accommodations are encouraged to submit the ‘Notice of Approved Accommodations’ to the instructor at the beginning of the semester because a reasonable amount of time may be needed to prepare and arrange for the accommodations.

Additional information about the Office for Students with Disabilities is available at http://www.austincc.edu/support/osd/

**Safety Statement** - Austin Community College is committed to providing a safe and healthy environment for study and work. You are expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies. Additional information on these can be found at http://www.austincc.edu/ehs. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the Emergency Procedures poster and Campus Safety Plan map in each classroom. Additional information about emergency procedures and how to sign up for ACC Emergency Alerts to be notified in the event of a serious emergency can be found at http://www.austincc.edu/emergency/.

Please note, you are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be dismissed from the day’s activity, may be withdrawn from the class, and/or barred from attending future activities.

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**Use of ACC Email Communication** - All College e-mail communication to students will be sent solely to the student’s ACC email account, with the expectation that such communications will be read in a timely fashion. ACC will send important information and will notify you of any college related emergencies using this account. Students should only expect to receive email communication from their instructor using this account. Likewise, students should use their ACC email account when communicating with instructors and staff. Instructions for activating an ACC email account can be found at http://www.austincc.edu/accmail/index.php.

**Cell phone policy** - Students are not allowed to have their cell phone on in classroom during scheduled class times. Students may check messages during their break as long as their phone calls don’t cause the student to return from break late. During an emergency situation, the student should notify the instructor. Instructors will use their discretion to determine an emergency situation. (Students may be able to set phone to vibrate, and leave the classroom to receive an emergency call.) Dept of Visual Communication Policy & Procedure Manual.
**Student And Instructional Services**
ACC strives to provide exemplary support to its students and offers a broad variety of opportunities and services.

- Information on these services and support systems is available at: [http://www.austincc.edu/s4/](http://www.austincc.edu/s4/)
- Links to many student services and other information can be found at: [http://www.austincc.edu/current/](http://www.austincc.edu/current/)
- ACC Learning Labs provide free tutoring services to all ACC students currently enrolled in the course to be tutored. The tutor schedule for each Learning Lab may be found at: [http://www.austincc.edu/tutor/students/tutoring.php](http://www.austincc.edu/tutor/students/tutoring.php)

For help setting up your ACCeID, ACC Gmail, or ACC Blackboard, see a Learning Lab Technician at any ACC Learning Lab.

**Course Calendar/Outline**
11 Week Semester (Spring/Fall)

Week 1 = Introduction; Practical Light & Color  
Week 2 = ZBrush  
Week 3 = ZBrush  
Week 4 = ZBrush

Week 5 = ZBrush Review & Quiz *(all assets due at beginning of class)*

Week 6 = Color Theory for Game Artists  
Week 7 = UV Unwrap & Photoshop Textures  
Week 8 = UV Unwrap & Photoshop Textures  
Week 9 = Texture Review & Quiz *(all assets due at beginning of class)*

Week 9 = In Game Lighting & Shaders  
Week 10 = In Game Lighting & Shaders  
Week 11 = Final Review & Test