

**ATEC 3327.001** Lighting and Composition 1  
Peter McCord  
Term: Fall 2012  
Meeting Time: M 12:00pm - 2:45pm

**Contact Info** Email: pam062000@utdallas.edu  
Office Hours: After class or by appointment  
Class web reference: [http://atec.utdallas.edu/atec\\_course\\_materials](http://atec.utdallas.edu/atec_course_materials) (netID and password required)

**Course Description:**

An in depth examination of Lighting and Composition fundamentals and techniques for use in computer generated art. An introduction to the process of lighting, rendering and compositing computer generated images. Students will learn to create custom lighting setups and how lighting affects mood, time, and viewer perception. All models will be supplied for the course.

**Course Requirements:**

None

**Course Structure:**

This class will consist of lectures, demonstrations, constructive critiques and class discussions.

**\*\*This class will make use of an online video repository. This information/videos/content is designed to help reinforce class topics and principles. Students are recommended to use this information/videos/content as a reference to better their own individual work, and not necessarily create/replicate/recreate the assignment/file verbatim. Should a student choose to create/replicate/recreate the assignment/file verbatim, they do so realizing that while acceptable, it may be detrimental to their continued growth.**

**Mandatory Textbook:**

Digital Lighting and Rendering 2<sup>nd</sup> Edition by Jeremy Birn  
Available on Amazon.com or any online book store.

**Course Materials:**

Pen/Pencil  
Notebook/Sketchbook  
Archive materials (cd, dvd, flash drive, etc..)

**Grading Policy:**

Students must demonstrate satisfactory achievement of course objectives through fulfillment of course assignments and by contributing to class discussions and critiques. Course assignments will require students to use software and equipment available at the ATEC computer labs. Course evaluation will be based upon the following.

**Points Required for Grade:**

- A 126 - 140
- B 112 - 125
- C 98 - 111
- D 84 - 97
- F Below 83 is failing

### Assignment Point Values:

- Assignment: 1, 2, 3, 4, 6, 7: 10 points
- Assignment: 5 and 8: 20 points
- Final Project: 40 points (A  $\geq$  36, B  $\geq$  32, C  $\geq$  28, D  $\geq$  24, F < 24)
- Total: 140 points

### Course Schedule

#### Week 1 (Aug. 27): Introduction to Light and Camera and Fundamentals of Light and Shadow

**Assignment 1:** Find two differing film clips and break them down explaining the use of concepts discussed in class. Areas that should be covered include use of color, use of light, and an attempt to try and break down the photographic methods/settings used. Each clip should receive a one page break down. (2 pages total per student)

Photograph objects utilizing the concepts discussed in class. Digital images are to be turned in along with a typed description document which discusses the settings/practices used in each image. (At least 10 images must be turned)

(10 pts)

#### Readings:

Ch. 1 – Fundamentals of Lighting Design

Ch. 3 – Shadows and Occlusion (pp. 43 – 72)

#### Readings:

Ch. 8 – The Art and Science of Color (pp. 214 – 245)

Ch. 6 – Cameras and Exposure (pp. 160 – 183)

#### Week 2 (Sep. 3): Labor Day

## *No class*

#### Week 3 (Sep. 10): Digital Lighting 101

**Assignment 2:** Light a scene using 3 different 3 point lighting set ups. Students then must create 3 more “experiment” images where they can play with lights to try to get interesting results based on an intended look, feeling, reference image, etc. A document is required where each image must have a typed description giving basic lighting info and intent. (10 pts)

#### Readings:

Ch. 2 – Lighting Basics and Good Practices (pp. 17 – 34)

Ch. 5 – Lighting Creatures, Characters, and Animation (pp. 125 – 145)

#### Week 4 (Sep. 17): Natural vs. Artificial Light

**Assignment 3:** Light a still life for both indoors and outdoors. Lighting used should make use of concepts discussed in class along with the color information covered up to this point. The lighting set ups for each render must be unique. Students must not use one setup for both images. (10 pts)

**Reading:**

Ch. 4 Lighting Environments and Architecture (pp. 86 – 107)

Ch. 9 Shaders and Rendering Algorithms (pp. 248 – 280)

**Week 5 (Sep. 24): Lighting a Simple Interior and Introduction to Gamma Correction**

**Assignment 4:** Light an interior for day and night. Two unique light set ups required. (The interior scene must be different than the one used in class. 10 pts)

**Week 6 (Oct. 1): Finite Light Control**

**Assignment 5 Pt.1:** Light a complex interior for day (bedroom file). Students submit one “final” render, along with a pdf/word doc explaining their efforts.

**Week 7 (Oct. 8): Finite Light Control Pt. 2 Occlusion and Basic Compositing**

**Assignment 5 Pt.2:** Refine complex interior lighting for day image. Light a complex interior for the night (bedroom file). Students submit one “final” render, along with a pdf/word doc explaining their efforts. Students must render an Ambient Occlusion image and comp it on top of their final lighting renders in Photoshop (both night and day). Students will turn in the revised day scene and night scene with ambient occlusion applied and 2 pdf or word docs describing the lighting process for both. (20 pts total for Assignment 5)

**Reading:**

Ch. 3 – Shadows and Occlusion (pp. 73 – 80)

**Week 8 (Oct. 15): Compositing – How and Why?**

**Assignment 6:** Light, render and composite a simple day scene (similar to in class assignment). Students should manipulate the image via compositing techniques to get different results. Experimentation is key on the manipulated images. (10 pts)

**Reading:**

Ch. 11 – Rendering Passes and Compositing

**Week 9 (Oct. 22): Compositing Pt. 2**

**Assignment 7:** Light, render and composite an outdoor night scene utilizing composition techniques shown in class. Maya Render layers introduced. (10pts)

**Week 10 (Oct. 29): Advanced Compositing**

**Assignment 8 Pt 1:** Light, render and composite a complex interior scene for day or night. Complex light setups first week. Also we will be discussing what passes and what layers to use for compositing final image.

**Week 11 (Nov. 5): Advanced Compositing Pt 2**

**Assignment 8 Pt 2:** Render and composite final scene into at least 3 layers (foreground, middle ground, background). Students will turn in a final render and each layer render as well as a PDF documenting their lighting and compositing process. (20 pts)

**Week 12 (Nov. 12):** Composition and Staging/Final Project Pre Production

**FINAL:** Go over final assignment. Thumbnail sketches and block out compositions for final scenes.

**Reading:**

Ch. 7 – Composition and Staging

**Week 13 (Nov. 19):** Final Project Pt. 2

**FINAL:** Final Project Pt. 2

**Week 14 (Nov. 26):** Final Project Pt.3

**FINAL:** Final Project Pt. 3

**Week 15 (Dec 3):** Final Project Pt.4

**FINAL:** Final Project Pt. 4. Reviewing what needs to be turned in for final.

**Week 16 (Dec 10):** Final Project Turn In and Review (Final Class)

**Final Projects Due at Start of class and critique to follow. Each student will show 1 or 2 of their final renders. This is the last regular class day and everyone should be in attendance.**

**Make-up Exams:** Makeup exams are available only to students who have a legitimate excuse for missing an exam, such as illness, scheduled job interview out of town, athletic team event out of town, death in the immediate family, etc. If you know in advance that you must miss an exam, give a written notice to the instructor in advance, and bring documentation to support your anticipated absence. If you miss an exam unexpectedly because of last minute illness or accident, submit a note to the instructor when you return to campus (or as e-mail attachment if you will be away for some time) with documentation of your situation.

**Second Chance:** There *may* be opportunities for students to resubmit improved work for extra consideration. In order to be eligible the student must have turned in the completed assignment on its original due date and fulfilling all specified requirements. Revisions should be based upon class critique feedback.

**Class Attendance:** All students are required to be on time and in attendance for each and every class. Students who accumulate three (3) absences or more should consider a withdrawal from the course due to the amount of information missed. This course builds from week to week, increasing in size and scope as it progresses.

**Punctuality:** It is important to attend class on time. Persistent and reoccurring tardiness is disrespectful to the instructor and to your peers. Any student attending late, and without prior notice to the instructor, is responsible for obtaining any missed material from their peers. Students may leave early with instructor's permission; however, such occurrences should be very infrequent.

**Late Assignments:** Adherence to deadlines is expected. It is the individual student's responsibility to keep track of the goals and deadlines and to present the work to the class and instructor on the specified dates.

Late assignments may or may not be accepted based upon the discretion of the instructor and the situations involved.

### **Class Participation and Classroom Citizenship:**

- Cell phones and pagers must be powered off during formal class hours.
- Do not talk when others (the instructor, guests, and fellow students) are talking.
- Students will not use the computers for personal reasons (e.g, check personal email, surf web) during class time.
- Participate in critique sessions and class discussions. You can learn a great deal from critique on other students' work as well on yours.

While the instructor or a guest is lecturing or demonstrating, you should be listening to the lecture or observing the demonstration, instead of emailing or web surfing. Not paying attention to lectures or demonstrations will affect your grade directly or indirectly.

### **Student Conduct and Discipline:**

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, A to Z Guide, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3, and in Title V, Rules on Student Services and Activities of the university's Handbook of Operating Procedures. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings. Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

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assignment/file verbatim. Should a student choose to create/replicate/recreate the assignment/file verbatim, they do so realizing that while acceptable, it may be detrimental to their continued growth.

**Copyright Violations:**

It is a federal crime to reproduce copyrighted software. Anyone caught reproducing software from the UTD labs will be subject to disciplinary action. In addition, anyone caught reproducing outside software in the lab will automatically lose all lab privileges and will be subject to other disciplinary action as deemed necessary.

**Email Use:**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

**Withdrawal from Class:**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

**Student Grievance Procedures:**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's Handbook of Operating Procedures.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

**Incomplete Grades:**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.

**Disability Services:**

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m. The contact information for the Office of Disability Services is:

The University of Texas at Dallas, SU 22  
PO Box 830688  
Richardson, Texas 75083-0688  
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

#### **Religious Holidays:**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

#### **Off Campus Instruction and Course Activities:**

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at [http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm). Additional information is available from the office of the school dean.

**These descriptions and timelines are subject to change at the discretion of the instructor.**