

N443

Advanced Lighting and Texturing

Department of Media Arts and Science / Human-Centered Computing Program

Indiana University School of Informatics and Computing, Indianapolis

Course Info: Credit Hours: 3
Class Meeting Time: 12- 2:40 PM Wednesday
Location: IT 255, Informatics & Communications Technology Complex
535 West Michigan Street, Indianapolis, IN 46202

Instructor Info: Name: Albert William
Office IT 481
email: almwilli@iupui.edu
Phone 278-9204
Office Hours 11AM- 2 PM Thursday and other times by appointment

COURSE DESCRIPTION

This course focuses on the implementation of lighting and shading concepts that students will apply to typical high end user scenarios. Students will produce portfolio quality graphics and apply these concepts to a variety of Media Arts and Sciences projects.

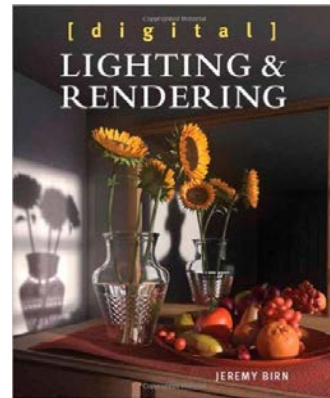
This is an advanced class that will help students to operate conceptually and theoretically in the development of high quality 3D lighting and texturing which can be applied to various aspects of design and production.

REQUIRED TEXTBOOK

There is no required textbook. However, the following books are very good resources (both by Jeremy Birn):

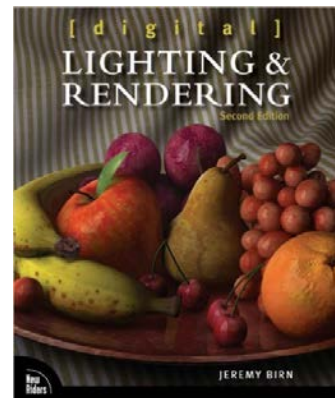
Digital Lighting and Rendering (3rd Edition) (Voices That Matter)

- Paperback: 464 pages
- Publisher: New Riders; 3 edition (November 21, 2013)
- Language: English
- ISBN-10: 0321928989
- ISBN-13: 978-0321928986



Digital Lighting and Rendering (2nd Edition)

- **Paperback:** 432 pages
- **Publisher:** New Riders; 2 edition (May 7, 2006)
- **Language:** English
- **ISBN-10:** 0321316312
- **ISBN-13:** 978-0321316318



COURSE OUTCOMES

Students will develop insight into the uses and meaning of advanced lighting and shading techniques. Students will learn to apply that insight to real world challenges and opportunities. Students will participate in the creation of projects that presents industry defined solutions. These projects will be presented in formats and will demonstrate a familiarity with key components of any media solution: content, technology, design, and technical abilities.

CORE COMPETENCIES

1. Students will have the ability to perform advanced lighting and texturing utilizing various techniques applied within a digital scene.
2. Students will deliver production and portfolio quality simulations that deliver advanced aesthetics and 3D production workflow. High quality simulations will be expected.
3. Students will learn 3D concepts that work across all 3D software platforms.
4. Students must be able to conduct self-directed exploration, express and document ideas and themes in both written and spoken form.

OTHER MATERIALS RELATED TO THE COURSE

Storage media: A portable HD is strongly recommended.

A flash drive will be very useful.

Writable media such as CDs or DVD may be required to turn in projects.

Students will be required to bring writing materials, whether electronic or traditional, to class.

SOFTWARE USED

Autodesk Maya

Adobe Photoshop, After Effects, Premiere, Media Encoder

Crazybump

Headus UV layout

Substance Painter

COURSE STRUCTURE OVERVIEW

The course structure is composed of these parts:

- Lectures / Lab
 - This activity will be the majority of class time. It will include critical review of contemporary media as appropriate to class. Use of software packages to implement concepts into practice.
- Quizzes
 - Quizzes will be administered during class time.
- Projects:
 - Tutorials and exercises will be assigned. The instructor will review the students' work and provide feedback.

DATE FOR EACH CLASS MEETING

N443 Weekly Schedule (subject to change and revision)

- Week 1 Aug 26 Intro, syllabus, concepts, lighting, color management, photoshop, mental ray
- Week 2 Sept 2 Textures, networks, substance textures, texture maps, maya hypergraph, mia textures
- Week 3 Sept 9 UV unwrapping, PSD networks, Photoshop Painting
- Week 4 Sept 16 UV unwrapping
- Week 5 Sept 23 UV unwrapping
- Week 6 Sept 30 **PROJECT # 1 DUE**
mental ray, reflections, refractions, final gather, global illumination
- Week 7 Oct 7 Physical sun and sky, HDRI, IBL
- Week 8 Oct 14 Caustics, mental ray
- Week 9 Oct 21 Sub surface scattering, mental ray, render passes, compositing
- Week 10 Oct 28 **PROJECT # 2 DUE** Substance painter
- Week 11 Nov 4 Substance painter
- Week 12 Nov 11 **Project #3 DUE** Substance painter
- Week 13 Nov 18 **Project # 4 DUE** In class work on final project
- Week 14 Nov 25 No Class Thanksgiving Break
- Week 15 Dec 2 In class work on final project
- Week 16 Dec 9 In class work on final project
- Week 17 Dec 16 **Final Project presentation**

Assignments

- Project #1 (100 pts)- Lighting and Texturing Reel #1
- Project # 2 (150 pts)- Lighting and Texturing Reel #2
- Project #3 (250 pts)- Lighting and Texturing Reel #3
- Project #4 (50 pts)- Final project Concept
- Project # 5 (350 pts)- Final Project Reel
- Attendance and class participation- (100 pts)

Quizzes- may be given at any given time and will be factored into the overall score for the semester.

Assignments

WEEK	DATE	ASSIGNMENT	DUE DATE	POINTS	%
1	Aug 26				
2	Sept 2				
3	Sept 9				
4	Sept 16				
5	Sept 23				
6	Sept 30	Project 1	Sept 30	100	10
7	Oct 7				
8	Oct 14				
9	Oct 21				
10	Oct 28	Project 2	Oct 28	150	15
11	Nov 4				
12	Nov 11	Project 3	Nov 11	50	5
13	Nov 18	Project 4	Nov 18	250	25
14	Nov 25				
15	Dec 2				
16	Dec 9				
17	Dec 16	Final Project	Dec 14	350	35
		Attendance and class participation		100	10

PRINCIPLES OF UNDERGRADUATE LEARNING (PUL):

Learning outcomes are assessed in the following areas:

- 1A. Core communication: written, oral and visual skills
- 1B. Core communication: quantitative skills
- 1C. Core communication: information resources skills
2. Critical thinking
3. Integration and application of knowledge
4. Intellectual depth, breadth, and adaptiveness
5. Understanding society and culture
6. Values and ethics

Learning Outcomes:

	PUL	Assessment
1. Project 1	3,2,4	Technical skills
2. Project 2	3,2,4	Technical skills
3. Project 3	3,2,4	Technical skills
4. Project 4	1A, 1C	Communication
5. Project 5	3,2,4,1A	Technical skills

Grading Information:

- These factors that will be evaluated in determining grades:
 - Technical competencies
 - Aesthetic appeal
 - Professional production
 - Participation in class discussion and class attendance
 - Lab assignments/ homework

Grading Standards

A – Outstanding, high quality work.

A fully completed project that demonstrates mastery of skills.

Projects that display creative and sometimes innovative work.

The project excels in areas of design, planning, or technical approach

B – Good to very good work.

The student completed the components of the project, but neglected to experiment with additional or more challenging technical approaches.

The work demonstrates good abilities in the respective new media applications, but may lack depth and level of skill.

The project could be lacking in areas of design, planning, or technical approach.

C – Average work.

No more than what was required of the course was completed.

The work is possibly incomplete in parts.

The work demonstrates average skills in depth, design, and application.

File formats had errors or were not compatible as expected

D – Below average work.

The work is largely incomplete and displays a lack of effort.

Very little time was put into the project and resulted in poor quality work.

The files handed in had errors or were not compatible as expected.

F – Failure to complete the objectives of the assignment.

Grade Scale

A+	100+
A	93 – 99.99
A-	90 – 92.99
B+	87 – 89.99
B	83 – 86.99
B-	80 – 82.99
C+	77 – 79.99
C	73 – 76.99
C-	70 – 72.99
D+	67 – 69.99
D	63 – 66.99
D-	60 – 62.99
F	Below 60%

Please note that the minimum grade for credit towards a major (both core and electives), minor, or certificate is a grade of C.

POLICIES CONCERNING ASSIGNMENT/PROJECT DEADLINES

- **NO LATE PROJECTS WILL BE ACCEPTED.**
- **Any project will be assigned a score of 0 (zero) points if not turned in by the stated project deadline.**
- Please check Oncourse assignments to determine when your project is due. It is your responsibility to understand due dates.
- Please check OnCourse assignments to determine the proper way to turn in the project due. Most projects will be turned in through the assignment tab on OnCourse, while some projects may be turned in on a physical medium.
- In the event that Oncourse is not available, a data CD (or data DVD) with name and assignment number will be accepted if turned in by the project deadline.
- Flash drives are also accepted, but may not be returned.
- Please label all electronic and physical media appropriately. Points will be taken off for improperly labeled media and assignments
 - Example for file: lastName_projectName.fileExtension
 - Example for media: Joan Smith, Class ###, Project ###
- Work may be turned in any time prior to the due date. Work will be considered late if not turned in at the date expected.
- Pop quizzes that are missed will not be allowed to be made up.
- Meeting project checkpoints will be required for full point credit on projects. Please reference the Oncourse assignment for specifics on each project.
- Midterm and Final exams/presentations will only be administered during set class times. A score of 0 (zero) points will be assessed on any exams not taken during class.
- Project grades may be challenged for one week after being posted. Project grades not challenged with-in seven calendar days will be final.

OTHER CONSIDERATIONS

- Please come to class on time and be prepared.
- Participation in class discussions, including class critiques and all written papers are required and will be considered in final grading.
- Students will develop and present individual projects unless otherwise approved in writing from the instructor.
- Cell phones, blackberries, iPods, and all other electronic devices should be turned off and not used during class time.
- Social sites such as Facebook, Twitter, or any others, may not be accessed during class time.
- Work for other courses may not be done during this class time.
- No student is allowed to leave early without permission of the instructor.
- Laptops should only be used for taking notes, not for running advanced software.
- Food and drink are not allowed in the computer labs.

POLICIES *for* ATTENDANCE & ASSIGNMENT/PROJECT DEADLINES

Attendance:

A basic requirement of this course is that you will participate in all class meetings, whether online or face-to-face, and conscientiously complete all required course activities and assignments. Class attendance is

required for classroom-based courses. It entails being present and attentive for the entire class period. Attendance shall be taken in every class. If you do not sign the attendance sheet while in class, you shall be marked absent. Signing the attendance sheet for another student is prohibited. The instructor is required to submit to the Registrar a record of student attendance, and action shall be taken if the record conveys a trend of absenteeism.

Only the following are acceptable excuses for absences: death in the immediate family (e.g. mother, father, spouse, child, or sibling), hospitalization or serious illness; jury duty; court ordered summons; religious holiday; university/school coordinated athletic or scholastic activities; an unanticipated event that would cause attendance to result in substantial hardship to one's self or immediate family. Absences must be explained with the submission of appropriate documentation to the satisfaction of the instructor, who will decide whether missed work may be made up. Absences that do not satisfy the above criteria are considered unexcused. To protect your privacy, doctor's excuses should exclude the nature of the condition and focus instead on how the condition impacts your attendance and academic performance.

Missing class reduces your grade through the following grade reduction policy: You are allowed two excused or unexcused absences. Each additional absence, unless excused, results in a 5% reduction in your final course grade. More than six absences result in an F in the course. Missing class may also reduce your grade by eliminating opportunities for class participation. For all absences, the student is responsible for all covered materials and assignments.

- On the third missed class time your final grade will drop 5 percent
- On the fourth missed class your final grade will drop 10 percent, and 5 additional percent thereafter for each additional class missed.
- More than six absences will result in an F in the course.
- **Responsible for due dates and related materials:** All due assignments are each student's responsibility. If class is missed, the student is still responsible for the assignment, as well as to find out what was covered in class, e.g., any new assignments or variations to an existing assignment. ALL assignment deadlines are outlined in the syllabus or syllabus supplemental documents provided on OnCourse. Ultimately, each student is responsible for the deadline. Also, weekly assignment deadlines should be adhered to, to insure fairness to all students. For the purpose of maintaining an equal and fair evaluation of each student's work, no student will receive special treatment.

INCOMPLETE

The instructor may assign an Incomplete (I) grade only if at least 75% of the required coursework has been completed at passing quality and holding you to previously established time limits would result in unjust hardship to you. All unfinished work must be completed by the date set by the instructor. Left unchanged, an Incomplete automatically becomes an F after one year. <http://registrar.iupui.edu/incomp.html>

MISSION STATEMENT

The Mission of IUPUI is to provide for its constituents excellence in

- Teaching and Learning;
- Research, Scholarship, and Creative Activity; and
- Civic Engagement.

With each of these core activities characterized by

- Collaboration within and across disciplines and with the community;
- A commitment to ensuring diversity; and
- Pursuit of best practices.

IUPUI's mission is derived from and aligned with the principal components—Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices—of Indiana University's Strategic Directions Charter.

STATEMENT OF VALUES

IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning. IUPUI values the opportunities afforded by its location in Indiana's capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community, both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.

CODE OF CONDUCT

All students should aspire to the highest standards of academic integrity. Using another student's work on an assignment, cheating on a test, not quoting or citing references correctly, or any other form of dishonesty or plagiarism shall result in a grade of zero on the item and possibly an F in the course. Incidences of academic misconduct shall be referred to the Department Chair and repeated violations shall result in dismissal from the program.

All students are responsible for reading, understanding, and applying the *Code of Student Rights, Responsibilities and Conduct* and in particular the section on academic misconduct. Refer to *The Code > Responsibilities > Academic Misconduct* at <http://www.indiana.edu/~code/>. All students must also successfully complete the Indiana University Department of Education "How to Recognize Plagiarism" Tutorial and Test. <https://www.indiana.edu/~istd> You must document the difference between your writing and that of others. Use quotation marks in addition to a citation, page number, and reference whenever writing someone else's words (e.g., following the *Publication Manual of the American Psychological Association*). To detect plagiarism instructors apply a range of methods, including Turnitin.com. <http://www.ulib.iupui.edu/libinfo/turnitin>

Academic Misconduct:

1. **Cheating:** Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.
 - a. A student must not use external assistance on any "in-class" or "take-home" examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, calculators, computers, and wireless communication devices.
 - b. A student must not use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare work, without advanced authorization from the instructor to whom the work is being submitted.
 - c. A student must not use materials from a commercial term paper company, files of papers prepared by other persons, or submit documents found on the Internet.
 - d. A student must not collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student's individual work.
 - e. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
 - f. A student must not steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
 - g. A student must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor or program to whom the work is being submitted.
 - h. A student must not, without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.
2. **Fabrication:** A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citation to the sources of information.
3. **Plagiarism:** Plagiarism is defined as presenting someone else's work, including the work of other students, as one's

own. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered “common knowledge” may differ from course to course.

- a. A student must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
- b. A student must give credit to the originality of others and acknowledge indebtedness whenever:
 1. directly quoting another person’s actual words, whether oral or written;
 2. using another person’s ideas, opinions, or theories;
 3. paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
 4. borrowing facts, statistics, or illustrative material; or
 5. offering materials assembled or collected by others in the form of projects or collections without acknowledgment
4. **Interference:** A student must not steal, change, destroy, or impede another student’s work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any student’s grade or the evaluation of academic performance. Impeding another student’s work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.
5. **Violation of Course Rules:** A student must not violate course rules established by a department, the course syllabus, verbal or written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.
6. **Facilitating Academic Dishonesty:** A student must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct, nor allow another student to use his or her work or resources to commit an act of misconduct.

OTHER POLICIES

1. **Right to revise:** The instructor reserves the right to make changes to this syllabus as necessary and, in such an event, will notify students of the changes immediately.
2. **IUPUI course policies:** A number of campus policies governing IUPUI courses may be found at the following link: http://registrar.iupui.edu/course_policies.html
3. **Classroom civility:** To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, group work, and other classroom exercises. Thus, unnecessary disruptions should be avoided, such as ringing cell phones engagement in private conversations and other unrelated activities. Texting, surfing the Internet, and posting to Facebook or Twitter during class are generally not permitted. IUPUI nurtures and promotes “a campus climate that seeks, values, and cultivates diversity in all of its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included, and valued” (IUPUI Strategic Initiative 9). IUPUI prohibits “discrimination against anyone for reasons of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or [veteran] status” (Office of Equal Opportunity). Profanity or derogatory comments about the instructor, fellow students, invited speakers or other classroom visitors, or any members of the campus community shall not be tolerated. A violation of this rule shall result in a warning and, if the offense continues, possible disciplinary action.
4. **Bringing children to class:** To ensure an effective learning environment, children are not permitted to attend class with their parents, guardians, or childcare providers.
5. **Course Evaluation Policy:** Course evaluations provide vital information for improving the quality of courses and programs. Students are required to complete one course and instructor evaluation for each section in which they are enrolled at the School of Informatics and Computing. This requirement has three exceptions: (a) The student has withdrawn from the course; (b) only one student is enrolled in the section (in which case anonymity is impossible); and (c) the section is a laboratory that must be taken with a course having a different section number. Course evaluations are completed at <https://soic.iupui.edu/app/course-eval/>. Course evaluations are open from the eleventh week. Course evaluations are anonymous, which means that no one can view the name of the student completing the evaluation. In addition, no one can view the evaluation itself until after the instructor has submitted the final grades for the course. In small sections, demographic information should be left blank, if it could be used to identify the student. A course evaluation must close before the grade for that course can be released. To ensure students have had ample opportunity to complete the evaluation, an uncompleted course evaluation could delay the release of the grade for up to a week.

6. **Communication:** The instructor should respond to emails within 48 hours, excluding weekends and holidays, and announce periods of extended absence in advance. The instructor should provide weekly office hours or accept appointments for face-to-face, telephone, or teleconferenced meetings.
7. **Email:** Indiana University uses your IU email account as an official means of communication, and students should check it daily for pertinent information. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from your IU email account.
8. **Disabilities Policy:** In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to reasonable accommodations. Please notify the instructor during the first week of class of accommodations needed for the course. Students requiring accommodations because of a disability must register with Adaptive Educational Services (AES) and complete the appropriate AES-issued before receiving accommodations. The AES office is located at UC 100, Taylor Hall (Email: aes@iupui.edu, Tel. 317 274-3241). Visit <http://aes.iupui.edu> for more information.
9. **Administrative Withdrawal:** A basic requirement of this course is that students participate in all class discussions and conscientiously complete all required course activities and/or assignments. If a student is unable to attend, participate in, or complete an assignment on time, it is the student's responsibility to inform the instructor. If a student misses more than half of the required activities within the first 25% of the course without contacting the instructor, the student may be administratively withdrawn from this course. Administrative withdrawal may have academic, financial, and financial aid implications. Administrative withdrawal will take place after the full refund period, and a student who has been administratively withdrawn from a course is ineligible for a tuition refund. Contact the instructor with questions concerning administrative withdrawal.
10. **Emergency Preparedness:** Safety on campus is everyone's responsibility. Know what to do in an emergency so that you can protect yourself and others. For specific information, visit the emergency management website. <http://protect.iu.edu/emergency>