Course Description

Course covers digital CG effects, by bringing together existing footage, modeling, texturing, lighting, camera techniques, matchmoving, compositing, filter layering, color correction, video effects and green screen. Students will design environments and create believable, cohesive production shots. This is a course in Hollywood Visual Effects production and common methodologies.

Graduate Cross-listing

This course is a cross listed course with both undergraduate and graduate students. Expectations from week to week will differ for each level of student. Graduate students are often requested to implement double the work as undergrads, research new problems and summarize solutions to problems to their undergraduate peers.

Principles of Undergraduate Learning [PULs]

Application of Knowledge (AoK) [Major]

Students are required to prove understanding of topics through project based learning. This class you will create a fully believable Hollywood production shot.

Intellectual Depth Breadth and Adaptions (Id) [Major]

Students are required to investigate alternate methods for production, and implement best practices for both software and hardware implementation.

Oral Presentation (Op) [Moderate]

Students are required to pitch, price and manage projects week to week. Discussion based reviews are also common weekly.
Writing Skills (W) [Some]
Students are required to research and deliver current methods to allow reiterate understanding of material.

Principles of Graduate and Professional Learning [PGPLs]
- Knowledge and skills mastery (K&S)
- Critical thinking and good judgment (CT)
- Effective communication (EC)
- Ethical behavior (EB)

Learning Objectives
- Students will have the ability to composite CG with video to a high quality level.
- Students will have the ability to perform detailed modeling, animation, texturing, and dynamic effects.
- Students will deliver production and portfolio quality animations that deliver advanced aesthetics, fluidity in animation, and mastery of Composite/3D production workflow. High quality animation and simulations will be expected.
- Students will have the ability to deliver film and short story projects and scientific simulation productions.
- Students will learn compositing and 3D procedures that should work across a variety of software platforms.
- Students will have the ability to create productions that are efficient in space and time.

Outcomes
Students will develop concepts from completed storyboards in animation/simulation productions from inception to completion. Their concepts will be sketched on storyboards and their production flow will be documented in a conceptual paper that defines your respective approach. High quality storyboards and papers must be completed before the beginning of your projects.

Required Text:
There are no required texts for this course.

Recommended Text:
- Author: Mark Christiansan
- Title: After Effects CS5 Visual Effects and Compositing
- Publisher: Adobe Press; 1 Pap/Dvdr edition (October 16, 2010)
- ISBN-10: 032171962X

Equipment needed:
Software used:

- Autodesk Maya 2013
- Autodesk Matchmover
- Zbrush 4.2 or higher
- Adobe Production Suite CS6

Expectations/Guidelines/Policies:

Attendance For success in this class I expect students to attend each class session. I will only allow missed classes if you give me notice a full week in advance. This class has a stringent attendance policy of 1 dropped letter grade for each 2 classes missed. I will take attendance at the beginning of each class.

Exams/quizzes - There are no exams or quizzes

Homework Assignments I WILL require homework exercises following tutorials or in class demo each week. I expect these to be completed by the next class.

Class Assignments Class tutorials and demos must be completed with the instructor. Failure to do so can result in a detrimental effect on effort and class participation scores.

Class assignments/projects are expected to be finished and handed in on time. If you can’t get in an assignment before class, email it to me. Final projects will not be accepted late.

Date for each class meeting:
Specific pre-class readings
Specific subject matter/topics covered
Goals and objectives of each class period

Assessment - Each Class will access
Oral presentation - Being involved in class lectures/demos
Writing skills
Critical thinking
Application of knowledge
Intellectual depth, breadth, and adaptiveness
Understanding of society and culture
Values and ethics

Tentative Weekly Outline

Week 1:
Introduction, Project Details
Past Course Inquiries
- View prior class projects
- Siggraph 2013/CGTalk/3D websites

Project 1, 2, 3 Details
Lecture: Breaking it Up, Analyzing Content, Evaluating projects
       After Effects Interface, 2D vs Matte painting, vs 3D
Lab:
Assignment: 2 Video Co-Pilot Tutorials #’s 87 and 71
Bring in 3 examples of recent blockbuster breakdowns
Outcome: Video Co-Pilot requirements ensure basic interface and toolset knowledge for applying basic to advanced concepts. These assignments also help students visualize and realize the power of certain tools within after effects.

Week 2:
Lecture: Milestone #1 (due week #5)
Color Correction, Gamma Correction in Maya/ AE, Creating Masks, luma Masking, and Painting Masks
Lab:
Assignment: - 2 Video Co-Pilot Tutorials #52 and 53
       Masking Elements assignment.
Outcome: Video Co-Pilot requirements ensure basic interface and toolset knowledge for applying basic to advanced concepts. These assignments also help students visualize and realize the power of certain tools within after effects.

Week 3:
Lecture: Lighting in 3D for a composite shot. Setting Up Render Layers/Passes,
Lab:
Assignment: - 2 Video Co-Pilot Tutorials #49 and # 50
       Color Correction and Gamma Assignment
Outcome: Video Co-Pilot requirements ensure basic interface and toolset knowledge for applying basic to advanced concepts. These assignments also help students visualize and realize the power of certain tools within after effects.

Week 4:
       Lecture: Color Keying, Pre-Production Planning for Live Video Shoots
Assignment: - 2 Video Co-Pilot Tutorials # 60, 68
Outcome: Video Co-Pilot requirements ensure basic interface and toolset knowledge for applying basic to advanced concepts. These assignments also help students visualize and realize the power of certain tools within after effects.
Week 5:
  Lecture: Motion Tracking in After Effects and Mocha
  Lab: Camera Matching Assignment Mocha, Matchmover

Assignment – Benchmark 3 competitor Compositing projects, break them down, and report their methods and how you can learn from their projects for your next 2 milestones. Due Week 6.

Mielstone# 2 Assigned: 3D composite into live video. 5 second minimum. Use of past 3D Character/Creatures/Objects encouraged. Due week 10.

Deliver production schedule. Week #6

Week 6:
  Lecture: Building Virtual Sets in Maya from Live Video Reference
  Lab: Assignment: Work on milestone #2, provide update Week #7 / Meet production Schedule.

Outcome: Library assignment allows student to strategize potential ways of attack for their own compositing final.

Production schedule will serve as weekly milestones for final project.

Week 7:
  Lecture: Camera Tracking Live video into Camera in Maya. Matchmover
  Lab: Assignment: Work on milestone #2 /Meet production Schedule.

Outcome: Production schedule will serve as weekly milestones for final project.

Week 8:
Lecture: Planning Render Layers for Compositing Animation into Live Video, Command Line Rendering, Progress Presentations, Lab time
Lab: Demo:
Assignment: Meet production Schedule.

Outcome: Production schedule will serve as weekly milestones for final project.

Week 9:
  Progress Presentations, Lab time
Assignment: Meet production Schedule.

Outcome: Production schedule will serve as weekly milestones for final project.
**Week 10:**
Presentations of Milestone #2, Go over Final Project, 3D into live video 20+ seconds

Outcome: Production schedule will serve as weekly milestones for final project.

**Week 11:**
Pitches for Final project, Story, technique, and production schedule review.
Outcome: Production schedule will serve as weekly milestones for final project.

**Week 12:**
Lecture: Incorporating Dynamics into advanced composites, Caching, render planning, uses referencing.
Outcome: Dynamics add to believability and incorporate automated animation for more believable CG shots.

**Week 13:**
Lecture: Review Rendering Techniques, Gamma prep, and progress updates
Applying Gamma Correction and Lighting Setup for Compositing
Lab: Demo Gamma Correction, SSS implementation, Passes Setup
Assignment: Continue on final project based on Production Schedule
Outcome: How to incorporate humans and organic CG with SSS composites is a crucial part of film and CG compositing.

**Week 14:**
Lecture: Review Rendering Techniques, Gamma prep, and progress updates
Lab: begin rendering 3D elements
Assignment: Continue on final project based on Production Schedule
Outcome: How to incorporate Gamma correction is a crucial part of film and CG compositing.

**Week 15:**
Lab: WorkDay, finish grading, color correction, and shot completions.
Assignment:

**Week 16:**
Present Final Project, and self reflection
Grading Information:

Weekly Assignments

All assignments are to be delivered in a folder with your name, class #, and week # titled, if the assignment is Maya based; with Maya project folders, and will be evaluated through Oncourse within the week.

Each weekly assignment is worth 50 points each.

Weekly assignments will consist of certain body parts and beginning to develop an appreciation of how the body works and moves. Students will learn to see, be patient, and develop a strong sense of foundations in proportion and anatomy.

Milestone # 1 is a preliminary check on your ability and sight of compositing a still photo with 3D elements, concern is with matching color, shadow, reflections and grain of the plate. Worth 100 pts

Milestone # 2 is a secondary check your ability and sight for compositing but this time with a still camera video plate, concern is with matching color, shadow, reflections and grain of the plate. Worth 100 pts

Milestone # 3 is a tertiary check on your ability and sight for compositing but this time with a moving camera video plate, concern is with matching camera movement, with your 3D color, shadow, reflections and grain to the plate. Worth 100 pts

Final Project Milestone is a final assessment of your ability to understand and implement the practices learned each week and is worth 300 points.

- 100 points towards camera Match
- 100 zBrush Cohesiveness and overall believability of the shot
- 100 points matching of color, shadow, reflections of 3D and 2D art to plate

Professionalism (100 pts)

Professionalism is the highest quality a student of industry can gain and respect. We are all adults, the following are areas in which we will earn or lower your grade over the 11 weeks of class.

- Attitude (be excited)
- Tardiness
- Contributing and requesting of Critiques in class
- Deliverables (turning in what is asked for, the way its asked for)
- Effort
- Looking and smelling the part
- Presentation Quality
- Teamwork (Are you contributing effectively? Socially?)
- Timeliness (time spent on projects versus peers)
- Time tracking (What are you worth? How long are you taking?)

Example

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment #1</td>
<td>Week#2</td>
<td>Video Copilot Tutorials 87 and 71, Proposal for Milestone #1 (K/S)(CT)(EC),(AoK)(ID)(W)</td>
<td>50</td>
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<tr>
<td>Assignment #2</td>
<td>Week#3</td>
<td>Video Copilot Tutorials 52 and 53 (K/S)(CT)(AoK) (ID)</td>
<td>50</td>
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<tr>
<td>Assignment #3</td>
<td>Week#4</td>
<td>Video Copilot Tutorials 49 and 50(K/S)(CT)(AoK) (ID)</td>
<td>50</td>
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<tr>
<td>Milestone #1</td>
<td>Week#5</td>
<td>Video Copilot Tutorials 60 and 68, and Milestone #1(K/S)(CT)(AoK) (ID)</td>
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<td>Assignment #5</td>
<td>Week#6</td>
<td>Proposal For Assignment #2, Benchmark 3 competitor Compositing projects, break them down, and report their methods and how you can learn from their projects for your next 2 milestones. Due Week 6 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
<td>50</td>
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<tr>
<td>Assignment #6</td>
<td>Week#7</td>
<td>Work on milestone #2, provide update Week #7 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
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<tr>
<td>Assignment #7</td>
<td>Week#8</td>
<td>Work on milestone #2, provide update Week #8 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
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<tr>
<td>Assignment #8</td>
<td>Week#9</td>
<td>Work on milestone #2, provide update Week #9 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
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<tr>
<td>Milestone #2</td>
<td>Week#10</td>
<td>Present Milestone #2 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
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<td>Assignment #9</td>
<td>Week#11</td>
<td>Work on milestone #2, provide update Week #11 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
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<td>Week#12</td>
<td>Work on milestone #2, provide update Week #12 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
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<tr>
<td>Assignment #10</td>
<td>Week#13</td>
<td>Work on milestone #2, provide update Week #13 (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
<td>50</td>
</tr>
<tr>
<td>Milestone #3</td>
<td>Week#14</td>
<td>Progress report/critiques on Final Project (K/S)(CT)(EC),(AoK)(ID)(W)(Op)</td>
<td>100</td>
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</tbody>
</table>
Grading scale

93% - 100%  A
90% - 92.9%  A-
88% - 89.9%  B+
83% - 87.9%  B
80% - 82.9%  B-
78% - 79.9%  C+
73% - 77.9%  C
70% - 72.9%  C-
68% - 69.9%  D+
63% - 67.9%  D
60% - 62.9%  D-
Below 59%    F

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 students created many sketches and investigated several options before choosing one.  
Combinations of color schemes, space, and page layout were used effectively and chosen carefully.

**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.  
Space was filled adequately and a few combinations of design were tried.  
The project could be lacking in areas of design, planning, or technical approach.

**C – Average work.**  
The work demonstrates average skills in depth, design, and application.  
No more than what was required of the course was completed.  
The work is possibly incomplete in parts or used the wrong file extension on handed in projects.

**D – Below average work.**  
The work is largely incomplete and displays a lack of effort.
Very little time was put into the software and thusly resulted in poor quality work. The files handed in had errors or were unable to be downloaded.

**F – Failure** to complete the objectives of the course.

**I - Incomplete**
Students are expected to complete their work in the allotted time of this session. However, because of unforeseen hardships students may not be able to complete the project in the time established for completion of his/her work. To receive a grade of Incomplete you must have 75% of the course work completed at a passing level.

**Other Policies**

**Academic Dishonesty**
Using another student’s work on a project, assignment, or any other form of dishonesty will result in a grade of zero and possibly an “F” in the course and will be referred to the Dean of Students.

All students in New Media should aspire to high standards of academic honesty. This class encourages cooperation and the exchange of ideas. However, students are expected to do their own work.

**Plagiarism:** (adapted from the definition by the School of Liberal Arts)
Plagiarism is the use of the work of others without properly crediting the actual source of the ideas, words, sentences, paragraphs, entire articles, music or pictures. Using other students’ work (with or without their permission) is still plagiarism if you don’t indicate who initially did the work. Plagiarism, a form of cheating, is a serious offense and will be severely punished. When an instructor suspects plagiarism, he/she will inform the student of the charge; the student has the right to respond to the allegations. Students whose work appears to be plagiarized may be asked to produce earlier drafts of the work. Students should, for this reason and as a protection in cases of lost papers, diskettes, retain rough drafts, notes and other work products for 2 or 3 weeks after the end of each semester. The penalties for plagiarism include reprimands, being failed for a particular exam, paper, project or the entire course, disciplinary probation, or dismissal. Faculty, after consulting with their chair and or the dean must notify students in writing of their decision. Students have the right to appeal such decisions by the submitting a petition.

**Late Work:**

Class assignments are expected to be finished and handed in on time. Late assignments will have a letter grade deduction after each class day not completed. If you cannot present on a specific day I need to know at least a week in advance so we can schedule for another time.

Final projects will not be accepted late.
All students are responsible for reading the code of student rights, Responsibilities, and Conduct of IUPUI

Liability warning:

Students are held accountable for lost items when they are logged into their computer account. Please log off each and every time you leave the lab.

Your student ID and password are private! Under no circumstance are you to give them out to anyone. If another person uses your ID or password you will be held personally responsible for any and all activity on your computer account. If plagiarism is involved you run the risk of being dismissed from the school. If a computer or software is damaged you are responsible for repair.

“Children are not permitted to attend class with parents, guardians, or childcare providers. This conduct has the effect of unreasonably interfering with an individual’s work or academic performance creating an offensive learning environment.

“A student must not violate course rules as contained in a course syllabus, which are rationally related to the content of the course or to the enhancement of the learning process in the course.”  

[Code of Student Rights, Responsibilities, and Conduct, page 29]

Administrative Withdrawal:

A basic requirement of this course is that you will participate in class and conscientiously complete writing, reading, lab, and project assignments. Keep in touch with me if you are unable to attend class or complete an assignment on time.

If you miss more than half of our class meetings within the first four weeks of the semester without contacting me, you will be administratively withdrawn from this section. Out class meets once/twice [*] per week; thus, if you miss two/four [*] or more classes in the first four weeks, you may be withdrawn.

Administrative withdrawal will take place after the full refund period, and if you are administratively withdrawn from the course you will not be eligible for a tuition refund. If you have any questions about the administrative withdrawal policy at any point during the semester, please contact me.