

## CTAN-432 The World of Visual Effects

### Spring Semester 2016 Syllabus

Thurs 4:30PM – 7:20PM

SCB 104

Units: 2

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Office Hours: Wed 7:45am to 9:45am.

Friday 7:45am to 9:45am or by appt.

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This course will explore the traditions and artistry of visual effects (VFX) with particular emphasis on the indispensable nature of VFX in past, present, and future movie and multi-media storytelling. We will examine the creative VFX problem solving process that has and continues to be a vital part of cinema. From the earliest motion picture work of magician Georges Melies (who arguably helped introduce storytelling to movies), through the “trick shot” artists of early Hollywood, on to the modern “wizards” hailed for conjuring the visions of the modern blockbuster. We will proceed as the weeks go by to view and discuss specific shots, scenes and entire films, looking to consider them both technically and dramatically.

Based on film clips viewed in class, students will be asked to present their assumptions and guesses as to how the VFX being considered were done, how they might have accomplished these shots/scenes, and how effective (or not) the VFX was in enhancing the film. From this, we will discuss how the shots/scenes were actually accomplished and the reasons for the techniques used to reach the final result.

Each week there will be reading and viewing assignments. You may be asked to discuss what we are reading and viewing during class. Consult the following class schedule for more specific information. For some sessions we will have guest lecturers, people I have worked with in the industry, who will bring clips of their VFX work and discuss the making of that material.

Our class discussions will be directed toward the final exam, where you will be assigned specific films to analyze. These exams will cover very technical as well as dramatic issues, but always with the focus on how the effects were done and how they helped the filmmakers tell their stories. In the end, it is my goal that each student comes away from the class with an understanding of how visual effects are forever tied to the mystery of film itself, how the medium works and its enduring power to beguile and enchant.

Your Final Grade is Based On:

Unswerving Attendance

Compulsive Reading and Viewing of Assignments

Dedicated and Heartfelt Discussion and Participation in Class/Artfully Crafted and Wonderfully Perceptive Written Work

A Sense of Humor

As percentages:

Class Participation –15%

Homework – 35%

Mid-term – 25%

Final Exam – 25%

Missing homework or assigned projects will not be excused without documented medical or personal emergencies. A late assignment may not be accepted. There are no unexcused absences - you need to document explanations of absences for which you want to be excused. You will receive a reduction of one-third letter grade for each unexcused absence.

Tardiness will not be tolerated, as there is simply too much that needs to be accomplished. There will be one “official” warning for tardiness, and then we will lower grades by one-third letter grade each occurrence.

Required Reading:

VES Handbook of Visual Effects

Visual Effects Society - Focal Press, 2010 Edited by Jeffrey A. Okun, Susan Zwerman. I recommend you purchase at [www.amazon.com](http://www.amazon.com), as they seem to have the best price.

Suggested Reading:

The Parade's Gone By

by Kevin Brownlow University of California Press ISBN-10: 0520030680

Special Effects – The History and Technique

Richard Rickitt Aurum Press, 2006

An Animated Life – Ray Harryhausen ISBN 10: 0712349197

Melies: Magie et cinema – Malthete & Mannoni (editors)

ISBN 10: 2879005981

Cinema of Adventure, Romance, & Terror – G. Murphy (editor)

ISBN 10: 0935578099

Special Effects: Wire, Tape, and Rubber Band Style – L.B. Abbott

ISBN 10: 0935578064

ASC Treasury of Visual Effects – Dunn (Conceived by) & Turner (editor) ISBN

10: 093557803X  
ASC Manual ISBN 10: 0935578153  
And: Cinefex Magazine

Course Outline:

**Jan. 14<sup>th</sup> Week – 1 VFX Pioneers – introduction of VFX Techniques.**

In preparation Read: VES Handbook of Visual Effects - Chapter 1 – Introduction.

Genesis: early methods and creators of cinematic illusions are discussed. Illusionist, Georges Melies. Variable frame rates, Glass Shots, Hanging Miniatures and split screens. Machine Age technology that would power the art form for nearly a century.

Visual materials to cover in class:

1. Hollywood the Pioneers Episode 11 “The Trick of the Light.”
2. “Safety Last” clock shot.
- 3 Glass shots – Chaplin etc.
- 4 Hanging Miniatures – “Ben Hur” (1927).

Homework: watch the film “Hugo.”

Lab: in class: see a 2709 Camera – touch 35mm film.

**Jan. 21<sup>nd</sup> Week – 2 Continue introduction of VFX techniques and shot design.**

Visual materials to cover in class:

1. Rear Projection at MGM – “Tarzan” – Africa on a sound stage in Culver City.
2. Traveling matte methods black and white - Williams’s process, Dunning shots, “Sunrise clip.”
3. Eugen Schüfftan technique – “Metropolis.”
4. Front Projection “2001: A Space Odyssey.”
5. Blue Screen photo chemical – “The Thief of Baghdad”
6. Blue and Green screen digital.

Quiz: show clip from “The Wizard of Oz” –students turn in paper at end of class.

Part 1, Lecture on “Hugo” – VFX shot design development and improvement.

Homework: Ask students to bring an example of a VFX shot from early cinema up to the 1950’s for discussion in next class.

**Jan. 28th Week – 3 Complete last week’s lecture part 2 on shot development and improvement. Review first examples of an Academy Award given for visual effects, class discussion on VFX nominees for 1939.**

Visual materials to cover in class:

1. Show clips from each 1939 nominee- “The Rains Came,” “Gone with the Wind,” “Only Angels Have Wings,” “The Private Lives of Elizabeth,” “Topper Takes a Trip,” “Union Pacific” and “The Wizard of Oz.”

Lab: Analysis, did the shot successfully advance the narrative of the film? Was the illusion effective? What worked about the image and what didn’t work? How could it have been more effective?

Homework: Appraise effectiveness of each VFX nominee and pick your winner. Do internet research on stop motion animator Ray Harryhausen for week-4 class.

**Feb 4<sup>th</sup> Week – 4 “There Be Monsters Here” – mechanical, puppets, stop motion and CGI.**

Visual materials to cover:

1. “Die Nibelungen” - mechanical dragon.
2. “King Kong” – stop motion animation.
3. “The Thief of Baghdad” – multi-armed toy.
4. Ray Harryhausen montage of his work.
5. “Golden Voyage of Sinbad” – Kali.
6. “Jurassic Park” – mechanical dinosaurs, CGI. Transition from stop motion to CGI dinosaurs.
7. “Lord of the Rings” – Balrogs fire creature CGI.

Homework: Watch “Citizen Kane.”

Lab: Review Homework with class – read through student response 1939 Academy Awards.

**Feb. 11<sup>th</sup> Week – 5 Linwood Dunn, Visual Effects Pioneer, his studio Film Effects of Hollywood. Development of Optical Printer effects. Snow effects in cinema, origins and contemporary usage.**

Visual materials to cover:

1. “Citizen Kane” New ways to tell stories with VFX.
2. “West Side Story” Making optical transitions.
3. “It’s a Mad Mad Mad Mad World”
4. “It’s a Wonderful Life.” Let it snow, let it snow, let it snow.

Homework: Watch “The Curious Case of Benjamin Button”

**Feb. 18<sup>th</sup> Week - 6 Discussion of Mid-term Exam.**

**Creating performances with VFX – Actors on split screen and CGI humans. The uncanny valley.**

Visual materials to cover:

1. “Phantom of the Opera” Lon Chaney’s make up box.
2. “The Prisoner of Zenda” – split screening, the actor plays two parts.
3. “Curious Case of Benjamin Button” – CGI human and digital make-up.
4. “Tron: Legacy” – less successful, why?

Homework: Read “The Invisible Art: the Legends of Movie Matte Painting” – pages on Norman Dawn, Al Whitlock, Peter Ellenshaw and Matthew Yuricich.

Note: pages from book given out in class.

**Feb. 25 Week – 7 The Invisible Art. Lecture on matte painting artists– Al Whitlock, Peter Ellenshaw and Mathew Yuricich.**

Visual materials to cover in class:

1. Documentary on Peter Ellenshaw
2. “Darby O’Gill and the Little People” What is mixed scale VFX?
3. “Twenty Thousand Leagues Under the Sea” The undersea boat.
4. Al Whitlock montage
5. “Zodiac” – San Francisco waterfront.
6. “CCBB” – Train station and backwards running clock.

Lab: Matte painting on display.

**Mar. 3 Week – 8 Mid-Term Exam.**

**Alien Apocalypse. Lecture on “War of the Worlds” 1953 verses “War of the Worlds” 2005. VFX in the vocabulary of film, past and present – how VFX shots are edited in a dramatic sequence**

Visual materials to cover in class:

1. Miniatures and environments for the original “WOTW” film
2. Design process for remake “WOTW” film
3. Sequence from “Raiders of the Lost Ark” vs. “Indiana Jones and the Kingdom of the Crystal Skull.”

Homework: If next week’s guest speaker is known have students do Internet research.

**Mar. 10<sup>th</sup> Week – 9 Guest Lecture - A prominent Visual Effects Supervisor discusses techniques – artistic technical and political solutions used to creating VFX on a recent film or project.**

Visual materials to cover in class:  
Depending on guest speaker.

-----Spring Recess-----

**Mar. 24 Week – 10 Guest Lecture- A prominent Visual Effects Producer – Discussions on large-scale VFX productions.**

Visual materials to cover in class:  
Depending on guest speaker

Homework: Ask students to bring example of a VFX shot from 1950 to 1990 for discussion at next class.

**Mar. 31 Week – 11 Contemporary computer techniques in visual effects.**

Visual materials to cover:

1. “The Matrix” – bullet time effect and its past and future iterations.
2. A brief history of computers in VFX.
3. Global illumination techniques.
4. Motion Capture performances.

Lab: Discusses Student picks from homework assignment VFX shot from 1950 to 1990 – Analysis.

**Apr. 7 Week – 12 Lecture on visual effect using “found” stock footage. Discussion regarding Final Exam.**

Visual materials to cover:

1. “12 O’Clock High” – early use of stock footage in VFX.
2. “Zelig”
3. “Forrest Gump”
4. Stock Footage demo: “Hemingway & Gellhorn”

Homework: ask students to bring example of VFX shot from 1990 to 2014 for discussion at next class.

**Apr. 14 Week – 13 Aviation VFX in Cinema – real aircraft, miniature and CGI.**

Visual materials to cover:

1. “The Dawn Patrol” - Dunning shots.
2. “Chain Lightning” – miniatures 1950 style at Warner Bros.
3. “The Right Stuff” – miniatures on wires photographed outdoors.
4. “The Aviator” – radio controlled miniatures that fly – end of an era.
5. “Red Tails” – CGI.
6. “Flight” – CGI.

Lab: Discuss student picks from homework assignment VFX shot from 1990 to 2014 – Analysis.

**Apr. 21 Week – 14 To infinity and beyond - VFX in outer space.**

Visual materials to cover:

1. “Woman in the Moon” Miniatures.
2. “Things to Come” Hanging Miniatures.
3. “Forbidden Planet” Outer space on a soundstage.
4. “Star Wars” Motion Control.
5. “Gravity” Redefining how films will be made in the future?
6. “Interstellar” Re-confirming traditional techniques?

**Apr. 28 Week – 15 The Future of VFX = the Future of Cinema?**

Visual materials to cover:

1. “Avatar” Virtual Cinema.
2. Exploration into new presentation technologies and formats.

The Study Days are: April 30th-May 3rd

**Final Date: May 5 Thursday 4:30pm-6:30pm**

Students With Disabilities:

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to Instructor (or S.A.) as early in the semester as possible. DSP is located in STU 301, and is open 8:30am-5:00pm Monday through Friday. The phone number for DSP is (213) 740-0776.

## Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Section 11, Behavior Violating University Standards <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the Office of Equity and Diversity <http://equity.usc.edu/> or to the Department of Public Safety <http://capsnet.usc.edu/departments/departments-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The Center for Women and Men <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.

## Support Systems:

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the American Language Institute <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. The Office of Disability Services and Programs [http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, USC Emergency Information <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

## Disruptive Student Behavior:

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach.



A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Judicial Affairs for disciplinary action.

PLEASE NOTE:

FOOD AND DRINKS (OTHER THAN WATER) ARE NOT PERMITTED IN ANY INSTRUCTIONAL SPACES IN THE CINEMATIC ARTS COMPLEX