

Course Syllabus

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ULTRAREAL

A4534x TECHNIQUES OF THE ULTRAREAL

A4542x IMAGINING THE ULTRAREAL

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Spring 2017

Wednesday 7-9PM

Avery 600 - Ware Lounge

Office Hours: Wednesday, 9PM

Description

The use of perspective and rendering is often an afterthought. With the abundance of 3D modeling software and the ability to see every angle of a project instantaneously, renderings are often thought of as a last minute tool for representation. This class challenges the participants to not only think of rendering as a method of presentation, but also a tool for design. We encourage the use of perspective and rendering early and often in the design process. In addition to learning techniques for creating ultrarealistic images, we will teach a workflow that encourages early exploration. We will focus on color, light, material, context, reflection, and opacity throughout the course of the entire design project. We will look for inspiration in many places, including art, photography and cinematography.

The class will use V-Ray for 3D Studio Max as the main engine for exploration, but will also encourage the use of other modeling applications, post processing software, and 3rd party plugins. Students will also be required to explore additional methods of composition, including sketching and photography. No knowledge of V-Ray or 3DS Max is required, but students should be able to model in an application of their choice. The class will focus on Rhino and 3DS Max as modeling tools.

Class Structure

Classes will consist of a combination of student presentations, lectures, and software demonstrations. There is a more detailed breakdown of each class in the schedule below. Other instructional video tutorials will be found online at digicon-nyc.tumblr.com. ([Links to an external site.](#)) There will be weekly office hours with teaching assistants and critics, as well as several

weekend working sessions with critics. Please note, that online tutorials and office hours are not a substitute for attending lecture.

Session A will start to explore the basic aspects of the rendering process, including but not limited to modeling, cameras, lights, and material. Session B will expand on these ideas and delve deeper into each aspect, as well as introduce additional techniques. Students who take session B are **highly encouraged** to take session A.

Grading is dependent on multiple factors. The first is weekly progress and participation. We will check blogs on a weekly basis. In order to achieve the level of quality that this class requires, it is necessary to test and revise the techniques that we show you each week. A few groups will be asked to present their progress in the beginning of class throughout the semester. The second factor in grading is overall quality of midterm and final images.

Project

Students will be encouraged to work in small groups of up to four (4) members for the semester. The project will consist of a small scale pavilion or other architectural object that will be developed and presented through rendering. Images will be uploaded to a team website each week, and critics and assistants will provide feedback. **The project must be new, original work.** Students **are not** allowed to use an existing project or previous studio work. You must design, model, and render a project from scratch.

In addition to the project, there will be small assignments throughout the course of the semester. Each group must create a Tumblr blog and upload assignments and progress images on a weekly basis.

Schedule

January 18th - Intro

LECTURE: Visual Studies presentation, project intro, and project walkthrough

- Introduction to the class and review syllabus
- Walkthrough sample project
- Discuss major goals for a rendering project
- Website explanation
- Session A and/or B explanation
- Review of first assignment

-Questions

Due Next Week: One sketch of a proposed perspective for each student, uploaded to blogs

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January 25th - Photography & Composition

REVIEW: Perspective Sketches

-Several groups will be selected to present their sketches

LECTURE: Photography and Camera Techniques

-Digital SLR Camera Set-up

-F Stop

-Shutter Speed

-Composition set up

DEMONSTRATION: Intro Photoshop

-Photoshop Perspective Correction

-Image Cropping & Composition

Due February 10th: Photo Composition Assignment

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February 1st - 3D Modeling and Max Basics

DEMONSTRATION: Rhino Bootcamp

-Modeling techniques, specifically for Floors, Windows, & Repetitive Elements

-Exporting to 3DS Max

DEMONSTRATION: Max Bootcamp

-Importing from Rhino

-Merging vs. Importing

-3DS Max settings, units

-Modeling in Max

- using the modifier stack

- Viewport Navigation

-Archiving your work for file sharing

-Camera Set Up

Due Next Week: Photo Composition Assignment

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February 8th - Lights, Camera, Vray

REVIEW PHOTO ASSIGNMENT

All groups discuss composition

DEMONSTRATION: Vray Basic Settings

Vray Basic Settings

Saving Settings for Batch Rendering

Basic Lighting

Setting up Cameras

- shutter speed
- f stop
- white balance
- vignetting
- tilt/shift
- perspective correction

Basic Materials

- WHITE 200
- GLASS

Rendering & Saving

Due Next Week: Perspective Screenshots of model, uploaded to blog

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February 15th - Parametric Workflow for Mapping and Materials 01

DEMONSTRATION: Using Parametric Workflow for Material Mapping

Grasshopper and adding randomness to geometry to create variation in renderings

Exporting and mapping these materials

Using 3DS export to preserve UVW maps

DEMONSTRATION and ONLINE: Materials

Procedural Materials

- Titanium
- ETFE
- Metals
- Water
- Chrome
- Plastic
- Channel Glass
- Frosted Glass

Due Next Week: Material Palettes

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February 18th or 19th - WEEKEND DESK CRITS

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February 22nd - Materials 02

REVIEW MATERIAL PALETTES

Selected groups discuss material choices

DEMONSTRATION: Materials

Bitmap Materials (Arroway, CG Textures, Dirt Maps)

- scale
- bump, displacement, reflectivity
- UVW Map modifiers
- Material IDs

Unfolding geometry to map textures

Due Next Week: Rendered views of model with at least 1 refined material

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February 25th or 26th - WEEKEND DESK CRITS

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March 1st - Materials 03

DEMONSTRATION: Custom Bitmaps

Using existing bitmaps to compile and create new ones

Extracting geometry to create maps

Creating maps from scratch

Dirt Maps

FSSS2

Crazy Bump

Due Next Week: Midterm Images: Custom bitmaps, Rendered view of model with custom bitmap material

March 8th - Kinne Week

DEMONSTRATION AND LECTURE: Advanced Visualization Techniques

March 15th - NO CLASS, SPRING BREAK

March 22nd - Collage Images

DEMONSTRATION: Custom Photo merging and collaging

How to collage Photos with renderings

Extracting render elements

Perspective Matching in 3D Max

Photoshop Blending Techniques

Due Next Week: Collage swap assignment

March 29th - Composition and Site Context

REVIEW COLLAGE SWAP ASSIGNMENT

Selected groups review their collaged swap assignments

LECTURE: Context

DEMONSTRATION: 3DS Max and Photoshop for Custom Environments

Grass, rock, paths using Photoshop

Proxy Objects

Creating rocky cliff face using Photoshop and displacement

Environment fog and containers

DEMONSTRATION: Forest Pack

Advanced context modeling

Forest Pack Pro plug-in

Using particle systems to mimic flowing water

Due Next Week: Context Catalog

April 5th - Lighting

LECTURE: Lighting Systems

DEMONSTRATION : Interior Lighting

Advanced lighting

Interior lighting

IES profiles

Due Next Week: Nighttime view of model

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April 8th or 9th- WEEKEND DESK CRITS

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----- **APRIL 12th - 3/4 REVIEW** -----

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April 15th or 16th - WEEKEND DESK CRITS

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April 19th - Advanced Post Processing

REVIEW NIGHTTIME RENDERS

Selected groups review night renders

DEMONSTRATION: Post Processing

Using Vray render elements

Adjusting levels

Layer masks

Lens blur / depth of field

Using After Effects / Magic Bullet / Volumetrics

Due Next Week: First draft renders of final images

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April 26th - NO CLASS, FINAL STUDIO REVIEWS

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May 3rd - DESK CRITS

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----- **May 5th - ALL FINAL IMAGES DUE & FINAL REVIEW (TENTATIVE)** -----

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