ULTRAREAL

A4534x TECHNIQUES OF THE ULTRAREAL
A4542x IMAGINING THE ULTRAREAL

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Spring 2015
Monday 7-9PM
Avery 600 - Ware Lounge
Office Hours: Monday, 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. Will 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 plug-ins. 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

At the beginning of some classes, we will show and discuss examples of student work. After this, each class will consist of an occasional lecture, followed by a software demo. There is a more detailed breakdown of each class in the schedule below. Other instructional video tutorials will be found online at digitalconceptsnyc.com. 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 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 26th - Intro

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

Introduction to the class and review syllabus
Walkthrough sample 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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February 2nd - 3D Modeling

REVIEW: Perspective Sketches

Several students will be selected to present their sketches

DEMONSTRATION: 3D Modeling - Rhino

Modeling techniques, specifically for adding detail and managing large models
Layer management, block management, inserting drawings
Worksessions
Exporting to 3DS Max

Due Next Week: Perspective screenshots of model, uploaded to blogs

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February 9th - 3D Modeling and Max Basics

LECTURE: Camera Settings

DEMONSTRATION: Intro to Max

Importing from Rhino
Merging vs. Importing
3DS Max settings, units
Modeling in Max

- creating geometry
- using the modifier stack
- using sub object selection
- using bitmaps for modeling

Batch rendering
Archiving your work for file sharing

Due Next Week: Materials palette

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February 16th - Intro to VRay and Materials
LECTURE: Materials
Material quality- reflectivity, transparency, refractivity, texture
DEMONSTRATION: Vray Basic Settings and Materials
Vray basic settings
Saving settings for batch rendering
Basic lighting
Setting up cameras

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

Basic Materials

- White 200, glass, water, chrome, metals

Rendering and saving
Due Next Week: Rendered views of model with white 200 and glass
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February 21 - SATURDAY DESK CRITS with PHILLIP
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February 23rd - Advanced Materials
REVIEW: Materials Palette
DEMONSTRATION: Materials
Procedural Materials

- Titanium and ETFE

Using Bitmaps

- 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 28 - SATURDAY DESK CRITS with JOE
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March 2nd - Custom Materials
DEMONSTRATION: Custom Bitmaps
Using existing bitmaps to compile and create new ones
Extracting geometry to create maps
Creating maps from scratch
Due Next Week: Midterm Images: Custom bitmaps**,** Rendered view of model with custom bitmap material
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March 9th - Kinne week?: Advanced Concepts
Using Grasshopper for model management and improving workflow
Using Crazy Bump and Filter Forge

----------Monday, March 9th MIDTERM IMAGES DUE, END OF SESSION A----------
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March 16th - NO CLASS - SPRING BREAK

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March 23rd - Composition and Site Context
REVIEW: Midterm Images
LECTURE: Context
DEMONSTRATION: 3DS Max and Photoshop for Custom Environments
Grass, rock, paths using Photoshop
Creating rocky cliff face using Photoshop and displacement
Environment fog and containers
Due Next Week: Context Catalog

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March 30th
REVIEW: Context Catalog
DEMONSTRATION: Particle Systems and Forest Pack
Advanced context modeling
Forest Pack Pro plug-in
Using particle systems to mimic flowing water
Due Next Week: Rendered views with updated context

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April 6th
LECTURE: Lighting Systems
DEMONSTRATION : Interior Lighting
Advanced lighting
Interior lighting
IES profiles
Due Next Week: Nighttime view of model

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April 11th - SATURDAY DESK CRITS with PHILLIP

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April 13th
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 18th - SATURDAY DESK CRITS with JOE

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April 20th - Last class before studio reviews - desk crits

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April 27th - NO CLASS, FINAL STUDIO REVIEWS

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May 4th - Last class, desk crits

---------- Friday, May 8th - ALL FINAL IMAGES DUE ----------
---------- Monday, May 11th (TENTATIVE) - FINAL REVIEW----------