DIGITAL ARCHITECTURAL PHOTOGRAPHY 421

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2 units
No prerequisites
Spring Semester 2024
Lectures: Thursdays. 3:30-5:20
Lecture Location: WAH B2

Office Hours: Thursday 2:30-3:30 or by appointment

IT Help: Depak Shirke
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COURSE DESCRIPTION
Introduction & Learning Objectives

All architecture students can prosper by learning to see light and how light alters the visual impact of architectural forms. Just as drawing allows students to refine their vision and perspective teaches how we see; the camera allows for yet another discipline to organically create with form and light.

This course will teach students to create successful images of exterior architecture, interior architectural design, as well as architectural models. The student will become a highly competent creative digital photographic image creator with accurate exposure, proper color correction, and excellent printing output. They will successfully use specific digital tools for the architectural image (free-transform/HDR) to correct distortion and capture mixed lighting with multiple exposures. Students will be able to utilize light, architectural structures and Adobe Lightroom Classic and Adobe Photoshop in new ways.

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Learning Objectives: Upon completion each student will possess the following skills:
- Comprehensive understanding of architectural lighting.
- Heightened sensitivity to light and how it strengthens architectural design
- Ability to use High Dynamic Range (HDR): multiple exposures to create dramatic architecture/interior images without additional professional lighting.
- Control of Parallax (Free Transform Procedure) to correct distortion and perspective so buildings do not look like they are leaning to one side, falling back or distorted.
- Creation of exceptional images with light and architecture, including dusk imagery.
- Advanced amateur use of most Single Lens Reflex (SLR) digital camera and mirrorless camera functions including shooting RAW, Auto Exposure Bracketing (AEB), ISO and exposure.
- Advanced use and knowledge of Adobe Lightroom Classic.
- Knowledge of how to do a monitor calibration.
- Advanced eleven color profiled printing.

Requirements and Three "Always"

Reading Materials

Required Reading:
1. Mandatory Text: D-65's Lightroom Workbook, Workflow, Not Work Slow in Lightroom 4 (2012) by Seth Resnick and Jamie Spritzer. Plus Free PDF for *LIghtroom* 6
2. Joseph Rosa and Esther McCoy, *A Constructed View: The Architectural*
   a. *Photography of Julius Shulman*,(2008, Rizzoli International Publications).
3. Film vs. Digital by Ken Rockwell http://www.kenrockwell.com/tech/filmdig.htm

Reading Recommended:
Richard Ross (Photographer), *Architecture of Authority* (2007, Aperture).
ISBN: 1597110523
Gerry Kopelow, *Architectural Photography: The Digital Way*
(2007, Princeton Architectural Press).
ISBN:1568986971.
Michael Harris, *Professional Architectural Photography, Third Edition* (2002, Focal Press).
ISBN: 0240516729
William Flusser*, Towards a Philosophy of Photography* (2007, Reaktion Books),
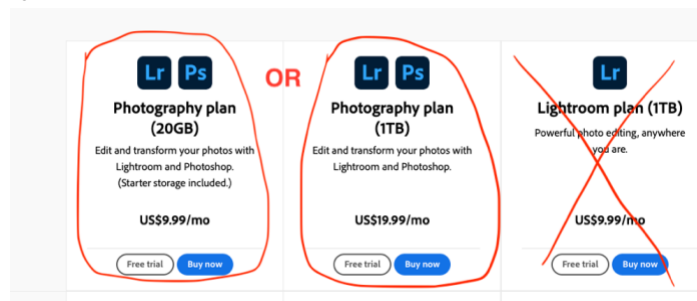ISBN 1-861890-76-1

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Requirements and Three "Always"

Software Requirements:

1. Adobe Lightroom Classic, Lightroom Creative Cloud, and Adobe Photoshop CC. Must have a current account with Adobe by first week of the semester.
https://www.adobe.com/creativecloud/photography/compare-plans.html

   a.
2. Photomatix Pro 6.2, Student pricing is 75% off. Go to: https://www.hdrsoft.com/order/academic.html#photo_student
   a. Must have by week three of the semester.

Camera Requirements:

1. 35mm Digital Single Lens Reflex (DSLR) camera or newer mirrorless cameras. We will discuss the first day of class for those of you who have not yet purchased.
2. Tripod – See content in Blackboard.
3. Camera flash card 16-32 GB
4. External hard drive for Lightroom- optional
   .

Three Always:

1. Always have your cameras to class. I cannot help you without your specific camera.
2. Always have computer with Lightroom Classic
3. Assignments are to be turned in on the due date (usually one day prior to class. If you are a week late your grade will drop one letter.

Equipment and Film:

1. Samy's Camera, 431 S. Fairfax Ave. 323-938-2420
2. The Icon Lab, 5450 Wilshire Blvd. 323-933-1666
   a. Both Samy's and Icon get 5% student discount

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Calendar

WEEK	Thursday	TOPIC
1	1/11	**INTRODUCTION** Light and Architecture, Basic Digital Camera Functions Settings, file types and sizes - Resolution
2	1/18	Creative Shooting/Interior Lighting /Processing Raw Files Bring cameras- daytime class shoot.
3	1/25	Lightroom Introduction **-** Computer preferences and basic setup and Copyright**. Class Shoot: Dusk Until 6PM)**
4	2/1	Lightroom Continued**:** Computer preferences and basic set up Calibration, Free transform.
5	2/8	Watch *Visual Acoustics, The Modernism of Julius Schulman*. On Amazon and many other servers
6	2/15	Lightroom Continued/Free Transform Continued.
7	2/22	Digital Printing and HDR
8	2/29	Advanced Shooting Methods
9	3/7	Digital Tool for Architecture Content Aware, Puppet Warp, Panorama
10	3/14	Panorama
11	3/21	Advance digital processing
12	3/28	Photo Exposition/articles paper due
13	4/4	Final Project
14	4/11	Final Project
15	4/18	Final Project
16	4/25	Final Project Review
Final	Tuesday 5/7	Presentation 2-4PM

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STUDENT RESPONSIBILTIES & GRADING

100	Active participation	
50	Assignment 1: Camera functions	**PASS/NO PASS**
50	Assignment 2: Raw files	**PASS/NO PASS**
50	Assignment 3: Opposites	**GRADED**
50	Assignment 4: LRFT & CS6FT:	**GRADED**
100	Assignment 5: Visual Acoustic	**GRADED**
50	Assignment 6: HDR:	**GRADED**
50	Assignment 7: Classic/Modern	**PASS/NO PASS**
50	Assignment 8: Exhibition Paper	**GRADED**
100	Assignment 9: Façade 5&5	**GRADED**
100	Assignment10: Quiz	**GRADED**
300	Final Project	**GRADED**

Grades: A = 95–100; A-= 90–94; B+ = 87-89; B = 82-86; B- = 80-81;
C+ = 77-79; C = 72-76; C- = 70-71.

Active Participation – 10%
This is a small class; your participation is necessary. **Active participation includes weekly-prepared questions.** If you miss class, it is your responsibility to obtain any pertinent information from another student prior to asking me. If for some reason you find that you *must* be absent or late it is essential that you notify me in advance by email.

School of Architecture Attendance Policy
The School of Architecture's general attendance policy is "no portion of the grade may be awarded for class attendance, but non-attendance can be the basis for lowering the grade, when clearly stated on the syllabus".

Assignments 50%
Assignments must be turned in on time. These assignments can be redone for a higher point value (within1 week). Some assignments will be pass/no pass. These are not graded on quality. These assignments are for your learning and practice of basic principles. Other assignment will be graded (see chart). However, all assignments will be downgraded if they are not turned in on time or missing. You are expected to backup all your files and deliver me your assignments to our photo lab computer prior to class time.

Quiz – 10%

Final Project – 30%
You will select a building or structure of your choice and present 20 of your best images capturing your subject in the morning, afternoon and evening light as well as dusk and interior images. You should anticipate having to visit your selected location three to four times. Here you will be graded on the quality of your images and specific use of the many digital enhancement techniques learned such as Free Transform, High Dynamic Range, color channels, layer mask, gradation filters and more. You will present the before and after images.

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Statement on Academic Conduct and Support Systems

Academic Integrity:
The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the USC Student Handbook. All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - *(213) 740-9355 – 24/7 on call*
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

988 Suicide and Crisis Lifeline -*988 for both calls and text messages – 24/7 on call*
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a network of over 200 crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

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Relationship and Sexual Violence Prevention Services (RSVP) - *(213) 740-9355(WELL) – 24/7
on call*
Free and confidential therapy services, workshops, and training for situations related to gender-
and power-based harm (including sexual assault, intimate partner violence, and stalking).

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - *(213) 740-5086*
Information about how to get help or help someone affected by harassment or discrimination,
rights of protected classes, reporting options, and additional resources for students, faculty, staff,
visitors, and applicants.

Reporting Incidents of Bias or Harassment - *(213) 740-5086 or (213) 821-8298*
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity,
Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - *(213) 740-0776*
OSAS ensures equal access for students with disabilities through providing academic
accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - *(213) 740-0411*
Assists students and families in resolving complex personal, financial, and academic issues
adversely affecting their success as a student.

Diversity, Equity and Inclusion - *(213) 740-2101*
Information on events, programs and training, the Provost's Diversity and Inclusion Council,
Diversity Liaisons for each academic school, chronology, participation, and various resources for
students.

USC Emergency - *UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call*
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including
ways in which instruction will be continued if an officially declared emergency makes travel to
campus infeasible.

USC Department of Public Safety - *UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call*
Non-emergency assistance or information.

Office of the Ombuds - *(213) 821-9556 (UPC) / (323-442-0382 (HSC)*
A safe and confidential place to share your USC-related issues with a University Ombuds who
will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - *(323) 442-2850 or* otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and
routines that enhance quality of life and academic performance.

Ai:
We might explore Ai with photography. It is not to be used in the
class without prior consent. You may not us AI for the two short
papers required in this course.

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LECTURE 1
Light and Architecture
- What is light in relation to architecture
- Seeing what most people cannot see
- Time of day and year, dusk or dawn
- Color temperatures

Pixels
A pixel is a contraction of the term **PI**cture **EL**ement
Each pixel in the image has a numerical value between 0 and 255 and is made up of three different color channels; red, blue and green for a total of 16.7 million different colors (256x256x256).
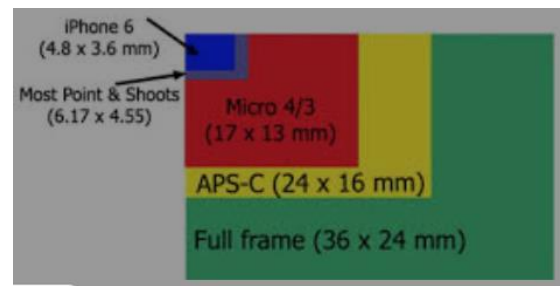
Mega Pixel is = 1,000,000 pixels
My older Canon 5D is 12.9 mega pixels and the image size for most of my images is 4372x2906=12.7. My Canon 5D II is 23mp
Total pixels count every pixel on the sensor surface. Usually the very edge pixels aren't used in the final image. Effective pixels are the number of pixels actually used in the image after the edge pixels have been dropped.

Sensor size chart:
      Point and shoot 1/1.8 ratio
      Most SLR 15x22mm (2:3)
      Professional SLR 24x35 (2:3)

iPhone 6 (4.8 x 3.6 mm)
Most Point & Shoots (6.17 x 4.55)
Micro 4/3 (17 x 13 mm)
APS-C (24 x 16 mm)
Full frame (36 x 24 mm)

Sensor size affect: Image Quality
                      Depth of Field
                      Focal Length

Resolution/Compression:
Lets look at resolution in terms of image quality and capture.
Camera RAW has no compression and is the largest file with the most information. There is also Large; Fine and low, Medium; Fine and Low, Small; Fine and low (some cameras offer more options and some less). If we use Raw, we are capturing the greatest amount of Pixels and have the biggest file to work with. All other files sizes use "**Lossy**" compression, which compresses the file size. There is an inherent loss of information and thus a loss of overall quality.
JPEG's are **"lossy"** type compression and can very in quality.
In Photoshop we can compress images in a "lossless" compression mode. Here we can make a smaller file size for storage but when we reopen the file every pixel has the exact same value as it did before.

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LECTURE 2

Lighting Concepts
- How light and architecture influence each other
- Illumination reveals essential charter of architecture
- Exposure alters architectural forms
- Creating movement with light

Histograms: This is the graph that is available to view when you shoot an image. It identifies both contrast and dynamic range of an image. The scale of a histogram is from 0 to 255 and together they hold all the values of all the pixels. The graph reads from left (0) to right (255).
We are looking for the distribution of pixels. There is no right or wrong histogram. However if heavy on the left then the blacks might be clogged up or underexposed. If heavy on the right the whites might have no detail and overexposure. The vertical axis determines the number of pixels at each value of brightness.
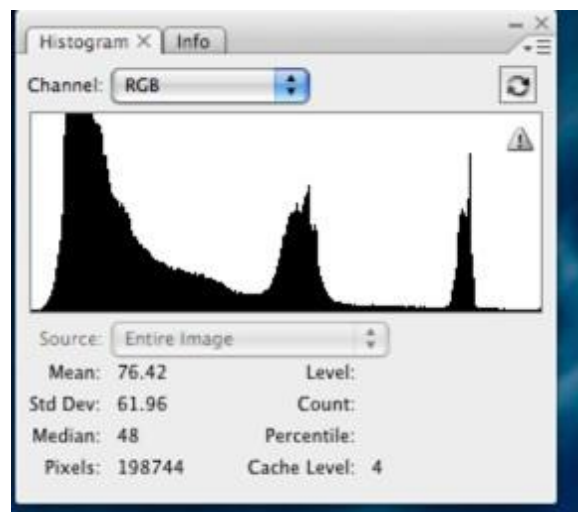
White Balance: 18% gray cards. A grey card is a card that determines the average values for any scene. If you shoot a white wall our camera will try to make is gray. If you shoot a black wall your camera will try to make it gray. By using a gray card we can help our camera determine the most accurate white balance or the truest white. In auto mode our cameras do an excellent job but may not be as perfect as we can get by using a gray card. Put yourself in the drivers seat. An advantage to digital is that we can easily adjust white balance in Photoshop.

Color Balance: Macbeth color checker. This is a color chart to help us match our image to a test strip and then our monitors and then our printers. Much more will be discussed later.

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Creative Image Capture

-Determining your architectural subject
-Supporting forms/characters in your scene
-Positioning and movement
-Vertical and horizontal lines

Camera RAW Processing: Below is the first window you will see when opening a RAW image in Photoshop. The menu on the right has multiple menus: Basic, Tone Curves, Detail, Split Toning, Lens Corrections, Calibrations and Presets. At the bottom in the middle is an important processing procedure. Click on this highlighted blue bar and make your selection for File Size, Resolution, Color Space and Depth.
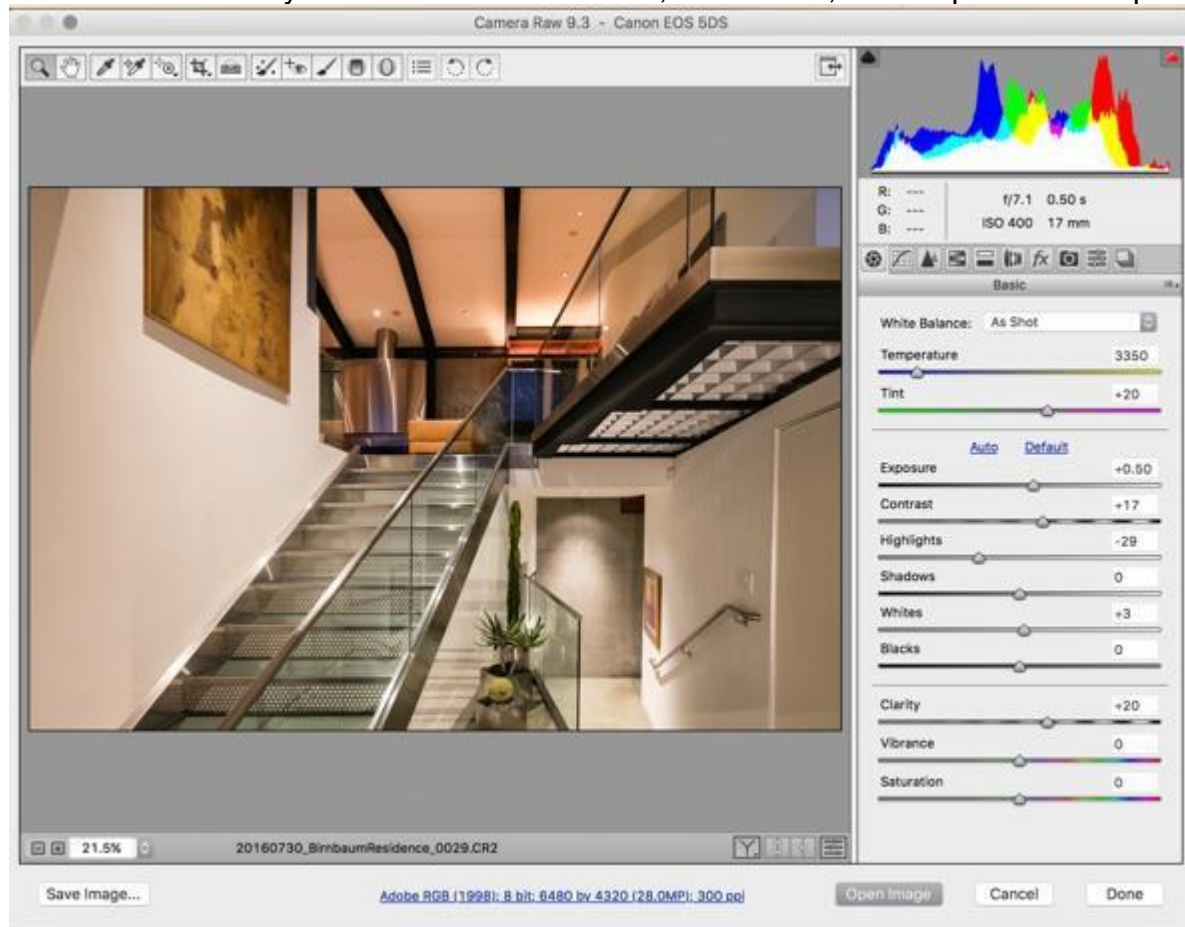
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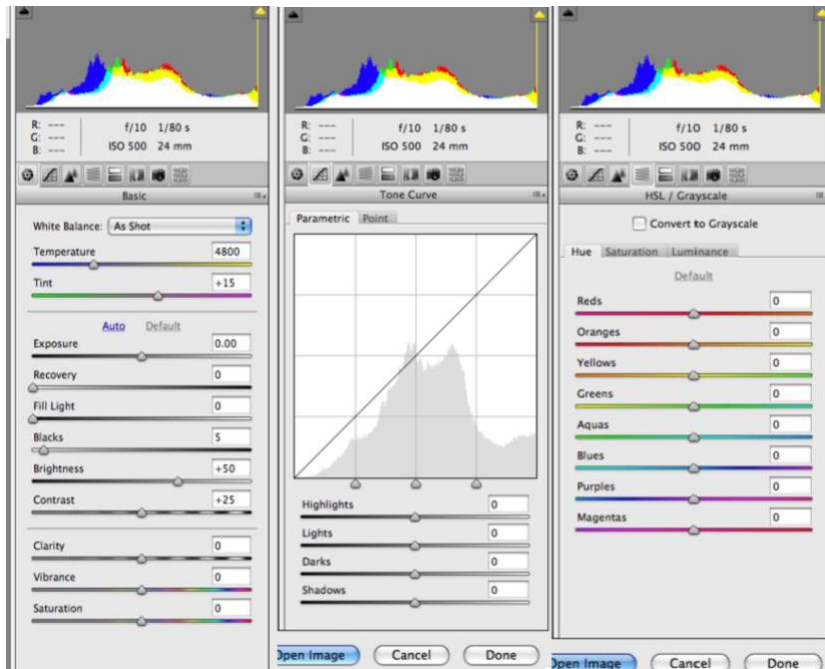
File Size: How many pixels are in your processed file. Your camera raw may shoot say 12 MP max. If you upsize you create a larger number of pixels in your file and some believe this improves printing. The quality is not affected for viewing on your computer. It may help in printing for we need a certain number of pixels to print a successful 11x14 print versus an 8x10 print.

Resolution: Changing the PPI (Pixels Per Inch) changes the size of your pixels. This does not increase or decrease the number of pixels. You can always change this at any point in Photoshop. I use 300 as my default.

Color Space: Adobe RGB had been the standard. ProPhoto is my new standard. This has more colors accessible.

Depth: This refers to the tonal range in your pixels. The more bits in each pixel the greater the color range. 8 bit provides 256 shades of color and 16 bit provides 65,536 shades. 16 bit will slow your computer down. We now have 32 and 64 bit. Lightroom 5 is 64 bit.
* Currently only a few printers are capable of printing these extra colors and monitors also have their limitations. Everyday the quality of these products increases and soon 16 bit will be a norm.

Click "Open" once you have finished processing your Raw image from the opening screen.

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Now you can create layers, background copies and adjustment layers to your image and make over a million different types of changes. For this week we are concerned with color corrections. The two most common are Curves and Levels.

Using Levels:
To lighten or darken an image, slide the midpoint slider to the left or right. To darken shadows, use the black point slider and move it to the right. This will actually change the value of your black point. If you moved this to a value of 25 you will be resetting your black point at 25. Any shadow detail below this will be lost. The same will apply for the white point.
In the channel bar you can select from **RGB** for overall exposure, **Red** for the reds and cyan, **Blue** for the blues and yellows and **Green** for the green and magenta. Use the sliders in the same way as above.
Output can be used to decrease contrast and **Input** to increase contrast.
Using Curves:
The advantage of curves is the ability to adjust any value from 0-255. In levels you can adjust the mid-tones, shadows and highlights. The menu is similar to levels except you can click any points on and off the line and alter the shape of the line to have curves. The curve represents many different values. To change a point, you you need to click and hold on the point and drag it off the curve menu.
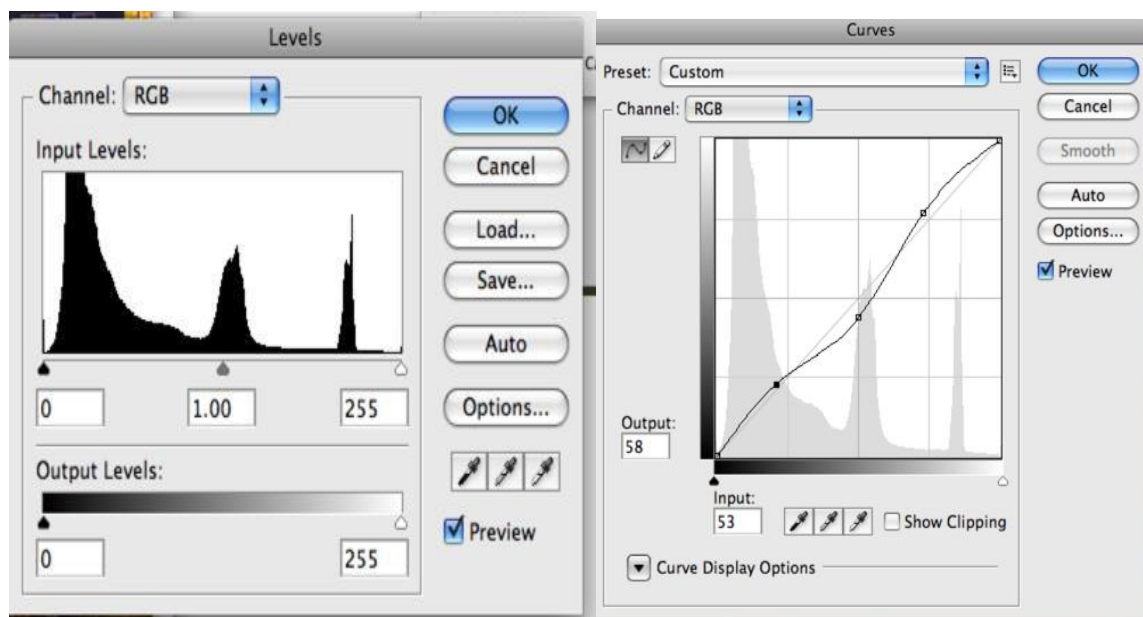
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LECTURE 3

Photography means *light writing* in ancient Greek. Photographers learn to interpret light and express light through their created image while others might describe the same scene with words.

Many students study photography to experience light in whole new ways while out in the world. Others study photography to play with light in the darkroom. Still others study photography to create new technologies or play with existing ones to help the photographer get a desired outcome post image capture. This was the experience for most of the past 100 years.

The Digital Revolution
After the continuous use of film systems for 150 years, our world inventors came up with digital sensors and many new computer programs such as Photoshop. This basically took the essentials of photography and applied them to 0's and 1's for an infinite number of possibilities. Adobe CS5 has over one million commands. So many that I believe the single biggest issue today stopping the flow of exciting images is the vast amount of choices we have for post image capture. Solid creative photography principles will place you in command of your own potential in a way that is conducive to learning. If you believe you can make a great image in Photoshop, you are not wrong, merely missing out on discovering light in nature. Photoshop is essentially a graphic tool and a support system for the photographer. I believe in keeping it simple. It is important to know many of the procedures available in Photoshop. It is important to be able to organize and file your images. It is important to process images as with film. And it is important to output images with enhancements that can add to your vision.
Soon we will be checking out Adobe Lightroom. This is a program that is a Digital Darkroom. Lightroom was designed by photographers for photographers. Thus, I believe it is a very expansive program that has been simplified to suite the most important needs for the photographer. Many photographers will not need to use Photoshop any more. Those that continue to use Photoshop will find Lightroom fully supporting Photoshop with ease of use. I would not need to use Photoshop too often if it were not for the fact that architectural photography requires perspective control, which can be accessed through the Transforming menu in Photoshop.

Last week you learned one way of organizing your images and then processing them and played with Curves and Levels for enhanced contrast and color control. Here are a few more items to be able to access in Photoshop and Bridge: Batch rename, batch processing, actions for batch processing, sharpening and dust/scratch removal, and noise removal. For architecture specifically, we will be discussing how to use Free Transform in the Edit Menu of Photoshop.

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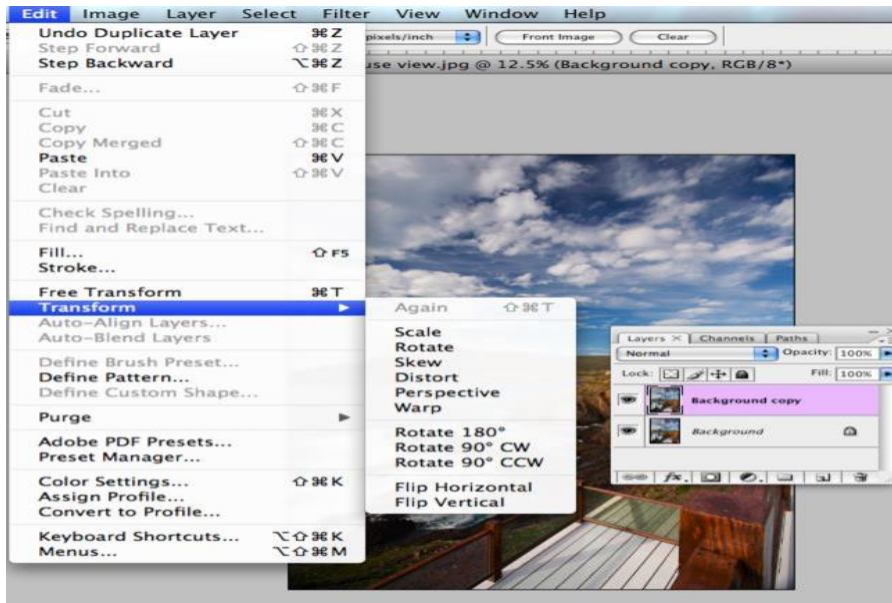
LECTURES 4-7

These lectures introduce Adobe Lightroom. Lightroom is a tool designed by photographers and computer experts. This revolutionary program allows photographers to continue to utilize their creative brain the way most photographers understand imagery. This is as close to film darkroom processing as we can get. The workflow, organization and processing tools are set up gracefully to match the tools photographers have developed over the past century of film imagery. Lightroom is a vast program, and may not be everyone's first choice. As you get more comfortable with it I believe you will be very impressed. Lightroom is relatively new. Although it may take a year or so to master this program, you will be able to successfully utilize many important features for daily shooting, within a short time. Processing procedures and printing will be demonstrated. For printing your midterm (part two) and the final project will require a proper monitor calibration. This way your images will look similar on the lab monitor and thus to the printer profiles. We will use eye-one software. The disc to download for eye-one software is available in the photo lab. A few people have had trouble with Windows vs. Mac. If so, please try online downloads and trouble shooting. If you do have trouble, please share solutions with the class and me.

I will leave two monitor calibration devices in the lab to be checked out for your use during lab hours.

The profiles are stored in your libraries under color sync. On a Mac you will see your new monitor profile calibration listed under displays – color.

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Final Project: Due - Final exam timeslot

Create a dynamic photographic documentation of an architectural setting, a commercial building, residence or complex. You will turn in a maximum of 20 images. These are to be of the highest quality. Print two images 13x19 of the highest quality: one as a Color print and one as a Black & White print.

-See Final Project Details on next page.

FINAL PROJECT DETAILS

Document a specific architectural project, studying the natural and available light, and utilizing all the tools and ideas presented to create 20 excellent images that tell a story of the chosen structure.

This need to be in your collection under USC Fall2015 421 and your name.

Under your name in Lightroom create the following:

Folders: Final Project

Subfolders: HDR-processed and 3 (a min. of 2 images and up to 10)
           Panorama- all 3 or more images and processed panorama
           Final 40
           Print not from Final (optional)
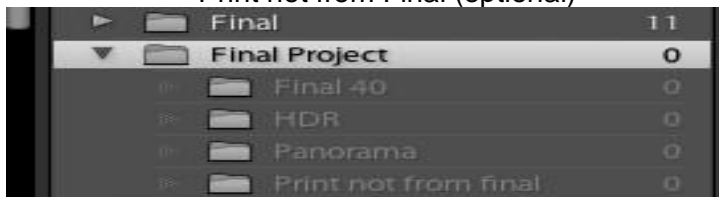
*Since some of your finals will be in the HDR and panorama you do not have to have the full 20 showing in "final 20-40" folder. Mark the ones you will be using in your HDR and Panorama by using a color label. Then make certain (or you will be downgraded) your final 20 are in the collections area in the USC 421 folder and in a subfolder that is labeled with your name.

This is what is needed as a minimum in your final project:

4 - Dusk Images
6 - Free Transform – at least 4 must be done in Photoshop.
4 - HDR (not more than 10 HDR)
1 - B&W (not more than 5 B&W)
1 - Tungsten
5 - Daylight
1 - Panorama w 3 or more images (not more than 2 panoramas)
4 - A maximum of 4 images over processed in HDR or in the LR Develop Module

Key wording on all images must include: architect/location/building name and date built. In the **Caption** box area in metadata note each of the criteria your image has from the above list (Ex. HDR, LRHDR, LR FT, CS6 FT, Day, Tung, Dusk, Pano, B&W)

Prints: Make one B&W and one color print. Minimum size is 13x19.
        One print may be from a location other than your final project. If you elect to do this make certain you are choosing an exceptional image and also place in an additional subfolder.

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Helpful Info

DPREVIEW.com for all camera comparisons

High Dynamic Range – Photomatix Pro: http://www.hdrsoft.com/

Tutorials on Photoshop:
http://russellbrown.com/tips_tech.html

Memory Cards,

Bigger is not better- would not shoot one continuous roll of film- stuff happens
16 Gigs is good if you have a 23mp camera maybe 32 gigs or for video 64 or more. Change cards every so often… retire them or for back up. Just like a hard drive. It will break at some point. Don't get to that point.
Never shoot near the end or erase at end to add more. Always format every time to ensure correct file structure. Speed is dependents on controllers in card and your camera matching.

ISO- higher the more noise (electronic error) you can fix it but much better to prevent it. Always set to no higher than is absolutely necessary. We shoot architecture on a tripod so the ISO can be low most of the time (ISO 100).

Histograms- correct exposure is vey important. Though digital is more like negative film better leeway and error toward overexposure.

No such thing as a perfect histogram. Need to interpret according to what you are shooting. If all black and white it would look like a goal post.

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Library Shortcuts

View Shortcuts

Esc	Return to previous view
Return	Enter Loupe or 1:1 view
G	Enter Grid Mode
E	Enter Loupe view
C	Enter Compare mode
N	Enter Survey mode
Command + Return	Enter Impromptu Slideshow mode
F	Cycle to next Screen Mode
Command + Option + F	Return to Normal Screen Mode
L	Cycle through Lights Out modes
Command + J	Grid View Options
J	Cycle Grid Views
\	Hide/Show the Filter Bar

Rating Shortcuts

1-5	Set ratings
Shift + 1-5	Set ratings and move to next photo
6-9	Set color labels
Shift + 6-9	Set color labels and move to next photo
0	Reset ratings to none
[	Decrease the rating
]	Increase the rating

Flagging Shortcuts

`	Toggle Flagged Status
Command + Up Arrow	Increase Flag Status
Command + Down Arrow	Decrease Flag Status

Target Collection Shortcuts

B	Add to Target Collection
Command + B	Show Target Collection
Command + Shift + B	Clear Quick Collection

Photo Shortcuts

Command + Shift + I	Import photos
Command + Shift + E	Export photos
Command + [	Rotate left
Command +]	Rotate right
Command + E	Edit in Photoshop
Command + S	Save Metadata to File
Command + -	Zoom out
Command + =	Zoom in
Z	Zoom to 100%
Command + G	Stack photos
Command + Shift + G	Unstack photos
Command + R	Reveal in Finder
Delete	Remove from Library
F2	Rename File
Command + Shift + C	Copy Develop Settings
Command + Shift + V	Paste Develop Settings
Command + Left Arrow	Previous selected photo
Command + Right Arrow	Next selected photo
Command + L	Enable/Disable Library Filters

Panel Shortcuts

Tab	Hide/Show the side panels
Shift + Tab	Hide/Show all the panels
T	Hide/Show the toolbar
Command + F	Activate the search field
Command + K	Activate the keyword entry field
Command + Option + Up Arrow	Return to the previous module

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Develop Shortcuts

Edit Shortcuts

Command + U	Auto Tone
V	Convert to Black and White
Command + Shift + U	Auto White Balance
Command + E	Edit in Photoshop
Command + N	New Snapshot
Command + '	Create Virtual Copy
Command + [	Rotate left
Command +]	Rotate right
1-5	Set Ratings
Shift + 1-5	Set ratings and move to next photo
6-9	Set color labels
Shift + 6-9	Set color labels and move to next photo
Command + Shift + C	Copy Develop Settings. A dialog will come up asking which settings to copy.
Command + Shift + V	Paste Develop Settings

Output Shortcuts

Command + Return	Enter Impromptu Slideshow mode. Shows the current selected photos in a slideshow based on the current Slideshow module settings.
Command + P	Print selected photos
Command + Shift + P	Page Setup

Navigation Shortcuts

Command + Left Arrow	Previous Photo
Command + Right Arrow	Next Photo

View Shortcuts

Tab	Hide side panels
Shift + Tab	Hide all panels
T	Hide/Show toolbar
F	Cycle screen modes
Command + Option + F	Go to normal screen mode
L	Cycle Lights Out modes
Command + Shift + L	Go to Lights Dim mode
Command + Option + Up Arrow	Go to previous module
Command + I	Show/Hide Info Overlay
I	Cycle Info Overlay
Command + J	Develop View Options

Mode Shortcuts

R	Enter Crop Mode
Q	Enter Spot Removal Mode
M	Enter Graduated Filter Mode
K	Enter Adjustment Brush Mode
D	Loupe View
Y	View Before and After left and right
Option + Y	View Before and After up and down

Target Collection Shortcuts

B	Add to Target Collection
Command + B	Show Target Collection
Command + Shift + B	Clear Quick Collection

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September 2022 — Sun in Los Angeles

‹ August   September   October ›

Month: September ⌄   Year: 2022 ⌄   Go

2022	Sunrise/Sunset		Daylength		Astronomical Twilight		Nautical Twilight		Civil Twilight		Solar Noon	
Sep	Sunrise	Sunset	Length	Diff.	Start	End	Start	End	Start	End	Time	Mil. mi
1 ⌄	6:26 am → (80°)	7:18 pm ← (280°)	12:51:52	−2:01	4:59 am	8:45 pm	5:30 am	8:14 pm	6:01 am	7:44 pm	12:52 pm (64.0°)	93.808
2 ⌄	6:27 am → (80°)	7:17 pm ← (280°)	12:49:50	−2:01	5:00 am	8:43 pm	5:31 am	8:12 pm	6:01 am	7:42 pm	12:52 pm (63.7°)	93.785
3 ⌄	6:28 am → (80°)	7:15 pm ← (279°)	12:47:48	−2:02	5:01 am	8:42 pm	5:32 am	8:11 pm	6:02 am	7:41 pm	12:52 pm (63.3°)	93.762
4 ⌄	6:28 am → (81°)	7:14 pm ← (279°)	12:45:45	−2:02	5:02 am	8:40 pm	5:33 am	8:09 pm	6:03 am	7:39 pm	12:51 pm (62.9°)	93.739
5 ⌄	6:29 am → (81°)	7:13 pm ← (278°)	12:43:42	−2:02	5:03 am	8:38 pm	5:34 am	8:08 pm	6:04 am	7:38 pm	12:51 pm (62.5°)	93.715
6 ⌄	6:30 am → (82°)	7:11 pm ← (278°)	12:41:39	−2:03	5:04 am	8:37 pm	5:34 am	8:06 pm	6:04 am	7:37 pm	12:51 pm (62.2°)	93.692
7 ⌄	6:30 am → (82°)	7:10 pm ← (278°)	12:39:35	−2:03	5:05 am	8:35 pm	5:35 am	8:05 pm	6:05 am	7:35 pm	12:50 pm (61.8°)	93.668
8 ⌄	6:31 am → (83°)	7:09 pm ← (277°)	12:37:32	−2:03	5:06 am	8:34 pm	5:36 am	8:04 pm	6:06 am	7:34 pm	12:50 pm (61.4°)	93.644
9 ⌄	6:32 am → (83°)	7:07 pm ← (277°)	12:35:28	−2:04	5:06 am	8:32 pm	5:37 am	8:02 pm	6:06 am	7:32 pm	12:50 pm (61.0°)	93.620
10 ⌄	6:32 am → (84°)	7:06 pm ← (276°)	12:33:23	−2:04	5:07 am	8:31 pm	5:38 am	8:01 pm	6:07 am	7:31 pm	12:49 pm (60.7°)	93.596
11 ⌄	6:33 am → (84°)	7:04 pm ← (276°)	12:31:19	−2:04	5:08 am	8:29 pm	5:38 am	7:59 pm	6:08 am	7:30 pm	12:49 pm (60.3°)	93.572
12 ⌄	6:34 am → (85°)	7:03 pm ← (275°)	12:29:14	−2:04	5:09 am	8:28 pm	5:39 am	7:58 pm	6:09 am	7:28 pm	12:49 pm (59.9°)	93.547
13 ⌄	6:34 am → (85°)	7:02 pm ← (275°)	12:27:09	−2:05	5:10 am	8:26 pm	5:40 am	7:56 pm	6:09 am	7:27 pm	12:48 pm (59.5°)	93.523
14 ⌄	6:35 am → (85°)	7:00 pm ← (274°)	12:25:04	−2:05	5:11 am	8:25 pm	5:41 am	7:55 pm	6:10 am	7:25 pm	12:48 pm (59.1°)	93.499
15 ⌄	6:36 am → (86°)	6:59 pm ← (274°)	12:22:58	−2:05	5:11 am	8:23 pm	5:41 am	7:53 pm	6:11 am	7:24 pm	12:48 pm (58.8°)	93.474
16 ⌄	6:37 am → (86°)	6:57 pm ← (273°)	12:20:53	−2:05	5:12 am	8:22 pm	5:42 am	7:52 pm	6:11 am	7:22 pm	12:47 pm (58.4°)	93.450
17 ⌄	6:37 am → (87°)	6:56 pm ← (273°)	12:18:47	−2:05	5:13 am	8:20 pm	5:43 am	7:50 pm	6:12 am	7:21 pm	12:47 pm (58.0°)	93.425
18 ⌄	6:38 am → (87°)	6:55 pm ← (272°)	12:16:41	−2:05	5:14 am	8:18 pm	5:44 am	7:49 pm	6:13 am	7:20 pm	12:47 pm (57.6°)	93.400
19 ⌄	6:39 am → (88°)	6:53 pm ← (272°)	12:14:35	−2:05	5:15 am	8:17 pm	5:44 am	7:47 pm	6:14 am	7:18 pm	12:46 pm (57.2°)	93.375
20 ⌄	6:39 am → (88°)	6:52 pm ← (271°)	12:12:29	−2:05	5:15 am	8:15 pm	5:45 am	7:46 pm	6:14 am	7:17 pm	12:46 pm (56.8°)	93.350
21 ⌄	6:40 am → (89°)	6:50 pm ← (271°)	12:10:23	−2:06	5:16 am	8:14 pm	5:46 am	7:45 pm	6:15 am	7:15 pm	12:45 pm (56.4°)	93.325
22 ⌄	6:41 am → (89°)	6:49 pm ← (271°)	12:08:17	−2:06	5:17 am	8:13 pm	5:47 am	7:43 pm	6:16 am	7:14 pm	12:45 pm (56.0°)	93.300
23 ⌄	6:41 am → (90°)	6:48 pm ← (270°)	12:06:11	−2:06	5:18 am	8:11 pm	5:47 am	7:42 pm	6:16 am	7:13 pm	12:45 pm (55.7°)	93.274
24 ⌄	6:42 am → (90°)	6:46 pm ← (270°)	12:04:05	−2:06	5:19 am	8:10 pm	5:48 am	7:40 pm	6:17 am	7:11 pm	12:44 pm (55.3°)	93.248
25 ⌄	6:43 am → (91°)	6:45 pm ← (269°)	12:01:59	−2:06	5:19 am	8:08 pm	5:49 am	7:39 pm	6:18 am	7:10 pm	12:44 pm (54.9°)	93.222
26 ⌄	6:44 am → (91°)	6:43 pm ← (269°)	11:59:53	−2:06	5:20 am	8:07 pm	5:49 am	7:37 pm	6:19 am	7:08 pm	12:44 pm (54.5°)	93.195
27 ⌄	6:44 am → (92°)	6:42 pm ← (268°)	11:57:47	−2:06	5:21 am	8:05 pm	5:50 am	7:36 pm	6:19 am	7:07 pm	12:43 pm (54.1°)	93.169
28 ⌄	6:45 am → (92°)	6:41 pm ← (268°)	11:55:40	−2:06	5:22 am	8:04 pm	5:51 am	7:35 pm	6:20 am	7:06 pm	12:43 pm (53.7°)	93.142
29 ⌄	6:46 am → (93°)	6:39 pm ← (267°)	11:53:34	−2:06	5:22 am	8:02 pm	5:52 am	7:33 pm	6:21 am	7:04 pm	12:43 pm (53.3°)	93.115
30 ⌄	6:46 am → (93°)	6:38 pm ← (267°)	11:51:29	−2:05	5:23 am	8:01 pm	5:52 am	7:32 pm	6:21 am	7:03 pm	12:42 pm (52.9°)	93.088

* All times are local time for Los Angeles. Time is adjusted for DST when applicable. They take into account refraction. Dates are based on the Gregorian calendar.

The September equinox (autumnal equinox) in Los Angeles is at 6:03 pm on Thursday, September 22, 2022.