USC School
of Architecture

ARCHITECTURAL PHOTOGRAPHY 422 Spring 2022

Instructor: Michael Arden
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3 units
No prerequisites
Fall Semester 2023

Lectures: Thursdays. 6:00 - 8:50PM
Lecture Location: WAH B2 (Photo Lab)
Office Hours: Thursday 2:30-3:15 or by appointment.
IT Help: Depak Shirke dshrke@usc.edu

CALENDAR
COURSE DESCRIPTION
CLASS POLCIES
ASSIGNMENTS
CAMERA, FILM & DIGITAL SUPPLIES
EXPOSURE
LOG SHEETS

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WEEK	DATE	TOPIC
1	8/24	INTRODUCTION- *Film, Digital, Light and Exposure*
2	8/31	LEARNING TO LOOK AT YOUR FILM *Comparison of Film vs. Digital* .
3	9/7	More 35mm FILM TECHNIQUES Dusk shoot ON CAMPUS
4	9/14	Watch *Visual Acoustics, The Modernism of Julius Schulman*. On Netflix or Amazon. **Write a 1-page paper**
5	9/21	*Introduction of DSLR Techniques* *Introduction to Lightroom and monitor calibration*
6	9/28	**Midterm Project Presentation**
7	10/5	Presenting the 4x5 camera and group 4x5 shoot Creating 4x5 small groups.
8	10/12	*Lightroom Develop Module* Advanced 4x5 and Advanced DSLR
9	10/19	Digital Printing
10	10/26	**Advanced Lightroom**
11	11/2	FIELD TRIP (on Sat. or Sun.) If we are allowed
12	11/9	FINAL PROJECT REVIEW
13	11/16	FINAL PROJECT REVIEW
14	11/23	**THANKSGIVING BREAK**
15	11/30	FINAL PROJECT REVIEW
FINAL	12/7	Thursday 6-8PM

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COURSE DESCRIPTION

35MM PHOTOGRAPHY PRINCIPLES AND TECHNIQUES
In this course we will utilize a series of assignments to facilitate your learning of classroom lessons with film and 35mm SLR cameras.

THE AMAZING SINAR 4X5 LARGE FORMAT CAMERA WITH FILM AND SINAR ARTEC, A MILESTONE IN DIGITAL ARCHITECTURAL PHOTOGRAPHY
This format camera has been used since the beginning of commercial photography. Not only does this camera allow a larger image area, it has the ability to correct distortion and parallax problems. In architecture, this is a must. This camera is not only a tool for parallax distortion but will teach you to see light.

Small groups of 3-5 students will each have a Sinar 4x5 camera to use and work with.

LIGHTROOM AND 35MM DIGITAL ARCHITECTURAL PHOTOGRAPHY
The student will become a highly competent creative digital photographic image creator with accurate exposure, proper color correction, and excellent printing output. You will master Adobe Lightroom CC Library and Development modules as well as successfully integrate specific digital tools for architectural image such as free-transform/HDR.

**Upon completion, each student will possess the following skills:**
- Comprehensive understanding of architectural lighting.
- Comprehensive understanding of film, exposure and light balance.
- 4x5 camera functions and parallax corrections
- 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 or falling back.
- Creation of exceptional images with light and architecture, including dusk imagery.
- Advanced amateur use of most Single Lens Reflex (SLR) digital camera functions, including: shooting raw, processing in Adobe Bridge and Photoshop CS6, batch processing, organization, color temperature, exposure/histograms, color management (curves/levels).
- Advanced use and knowledge of Adobe Lightroom CC.
- Knowledge of how to do a monitor calibration.
- Advanced eleven color profiled printing

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REQUIREMENTS/ITEMS YOU NEED TO KNOW

Software Requirements:

1. Adobe Lightroom Classic (not Lightroom Creative Cloud) and Adobe Photoshop CC. Must have a current account with Adobe.
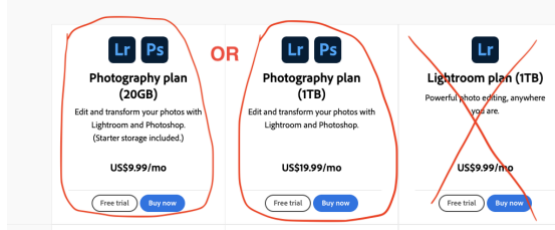
2. Photomatix Pro 6.2, Student pricing is 75% off. Go to: https://www.hdrsoft.com/order/academic.html#photo_student

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. Please see announcement on Blackboard for further information.
2. 35mm SLR film camera with complete manual functions. See Blackboard information. We have some to check out if you are near campus.
3. Tripod – See content in Blackboard.
4. Camera flash card 16-32 GB
5. External hard drive for Lightroom- optional.

Required Reading:

1. Mandatory Text: D-65's Lightroom Workbook, Workflow, Not Work Slow in Lightroom 4 (2012) by Seth Resnick and Jamie Spritzer. It will be provided as a PDF on Blackboard this year.

The Three Always:

1. Always have your Log sheets and cameras to class. I cannot help you without your specific camera.
2. Always have computer with Lightroom
3. Assignments are to be turned in on the due date. 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, www.iconla.com, 5450 Wilshire Blvd. 323-933-1666

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Text and Reading Materials

Required:

Seth Resnick and Jamie Spritzer, *D-65's Lightroom Workbook, Workflow, Not Workslow in Lightroom 4* (2012) It will be provided as a PDF on Blackboard this year.

Joseph Rosa and Esther McCoy, *A Constructed View: The Architectural Photography of Julius Shulman*,(2008, Rizzoli International Publications). ISBN: 0847817776 (on sale on Amazon for $29.95

Seth Resnick and Jamie Spritzer.**The Free PDF for *LIghtroom* 6**

Jim Lowe, *Architectural Photography Inside and Out* (2006 Photographers Institute Press) ISBN:1861084471

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

CLASS POLICIES

STUDENT RESPONSIBILTIES & GRADING

Grades*: A = 95–100; A-= 90–94; B+ = 87-89; B = 83-86; B- = 80-82;*
C+ = 77-79; C = 73-76; C- = 70-72.

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 – 20%

Assignments must be turned in on time. These are not graded on quality. These assignments are for your learning. They will be downgraded if they are not turned in on time or they are missing. If you were unsuccessful with a part of any assignment you will need to submit a redo. You are expected to keep these assignments in a notebook.

Midterm – Slide Show – 20%

You will select a building or structure of your choice and present 15-20 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.

Papers – 10%

There will be two papers due. One for Julius Schulman's documentary *Visual Acoustics.* The second will be for either a photography exhibition you visit or for Digital Photo articles, TBD. Please submit a two-page double spaced paper for each.

Final Projects – 40%; 20% 4x5, 20% digital project.

Each Group will turn in a minimum of six 4x5 transparencies of the highest quality. They must include images from a minimum of two different subjects. A dusk image and interior image must be represented. Both Daylight and Tungsten film must be utilized.

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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.

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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 national network of over 200 local 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.

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.

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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.

VISUAL ACOUSTICS: *THE MODERNISM OF JULIUS SCHULMAN:*

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This on Amazon, Hulu and many other servers. The Arch library also has a copy. Julius Schulman is known as the father of Architectural Photography. He created a *Bridge* for the everyday person to cross to see and begin to understand modern architecture. In fact, he is probably the reason you might be excited to be in the field of architecture. Most everyone has seen his iconic image of case study house #22 overlooking Los Angeles at night. Prior to Julius most architecture was seen as a rendering unless you were lucky enough to travel the world, which of course was difficult in the 1940's thought 1960"s.

This documentary has received a huge amount of praise.

Please take time to be present when you are watching this film and allow Julius to speak to you from his creative heart.

Paper: Due DBT

Please write a one-page paper on your experience perusing this documentary.

Bring a hard copy of the paper to class to turn in.

Midterm Project:

Create 20 amazing images from a building of our choice. Your transparencies should be mounted so we can present a slide show (Covid times you will have scans and process them in Lightroom). Please find out some information about the building you choose to capture, such as the architect, location and the date built. Be prepared to talk about your experience while shooting and why you chose a particular film or exposure.

You need to have at least one interior image. It can be shot from outside but must capture some interior lighting. You need at least one image that is Tungsten balanced (most dusk images are Tungsten). You need to shoot at least three dusk or dawn images. You need to shoot your subject at different times of day/dusk/night. At least three different times must be represented.

On the day of our slide show please bring in your notebook with all your assignments in plastic sleeves. You will also need to have a page with your slide presentations and another page of your next best 20 images.

Final Project: 4x5 camera

Part 1: Each group will turn in a minimum of (4) 4x5 transparencies of the <u>highest</u> quality. Both a dusk image and interior image must be represented.

Part 2: 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. **See Details next page**.

Part 3: Print two images 13x19 of the highest quality; one as a Color print and one as a Black & White print.

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FINAL PROJECT DETAILS
Discussion and development of individual final projects, including documenting 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.
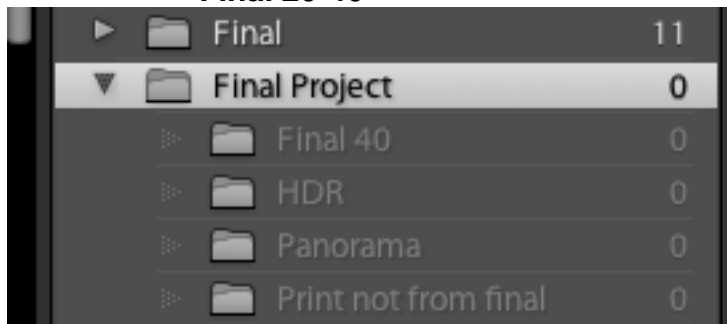
.
Under your name in your Lightroom create the following:
Folders: **Final Project**
Subfolders: **HDR**-processed and 3 (a min. of 2 images and up to 10)
              Panorama- all 3 or more images and processed panorama
              Final 20-40

*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) Processed in Photomatix
1 - B&W (not more than 5 B&W)
1 - Panorama with 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, LR FT, CS6 FT, Day, Tung, Dusk, Pano, B&W)

Prints: Make one B&W and one color print. Minimum size is 13x19.Matte or Luster paper
       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.

FIELD TRIPS

4x5 shoot one #1

On Campus TBD

We spend four hours practicing our skills on the 4x5 camera. We utilize shifts, tilts, swings and the rise mechanism to create perfectly straight images of architecture. We breakout into groups of 3-4. The students are allowed to discover the images they wish to take and then instruction is added to help achieve their shots. They have to deal with available lighting and determine proper exposures for sun, shade or open shade. Given this is a public area they must also learn to contend with the surrounding environment full of people and vendors.

Field trip 4x5 Shoot #2 TBD– (Sat or Sunday from 4-8pm)

Private residence or commercial site.

We explore capturing an architecturally significant home or commercial space. All types of professional lighting are discussed. Then with minimal lighting we work at creating an amazing dusk image merging daylight, available light (built in) and a few additional added lights. Students decide on angles and exposure. Demonstrations on lighting techniques are presented and explored.

Helpful Info

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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
4 Gigs is good if you have a 23mp camera maybe 8 gigs or for video 16 or 32. 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 dependant 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 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.

There is no such thing as a perfect histogram. We need to interpret the histogram to what you are
shooting. If your scene is all black and white your histogram 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

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

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.