# Lab 2: Post Processing

Last day to be checked off will be Friday, 10/25 during class
To get Checked off you will need to show me the following levels:
- 02_01_PostProcessEffects
- 02_02_ColorGrading
- 02_03_CameraDepthOfField
- 02_04_CinematicEffects
- 02_05_BloomAndLensFlares

## Setup

1. Register an account at www.packt.com
2. Login
3. Select support tab
4. Click Code Downloads & Errata
5. Search for "Unreal Engine 4 Shaders and Effects Cookbook"
6. Say you bought it on Amazon
7. Download the code
8. Launch Unreal
9. Browse for the project in the folder of code you just downloaded
10. Open that project
11. Navigate to Content/UEShadersAndEffects/Maps/Chapter02

## Post Processing Volume

12. Open the level 02_01_PostProcessEffects
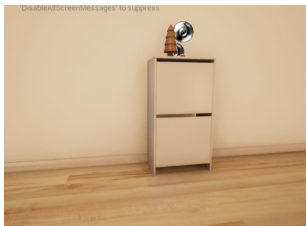


13. In the modes panel search for Post Process Volume, and drag it into the scene
14. Double click on the new Post Process Volume in your World Outliner
15. In the details panel, scroll to the Post Process Volume Settings
    a. Check the Infinite Extent Box

## Color Grading

16. Then open the level called 02_02_ColorGrading.  (We are going to compare its changes to the 02_01 level later)
17. Double click the Post Process Volume in the World Outliner
18. In the details panel look for the white balance, expand it, check the temp box
    a. Lower the value to 4500 to see the color of the room cool
19. Under shadows change the gain value to 2 to see the shadows washed out at the bottom of the cabinet
20. In Saturation -> midtones lower the value below the default of 1 (0.75)
21. Compare this level to the look of the 02_01PostProcessEffects level
22. Go back to the 02_02ColorGrading level, change the contrast and midtones to 1.5 to make the scene pop more
23. Also change highlights/saturation to 1000 to make the brightest parts of the scene stand out unnaturally
24. ColorGrading/Misc tab -> change the scene color tint

## Depth of Field

25. Open the 02_03_CameraDepthOfField level
26. Click on the Camera01 in the World Outliner
27. In the detail panel find Current Camera Settings / Focus Settings
    a. Check Draw Debug Focus Plane
28. Change the manual Focus Distance until it overlaps the candles (~62.5)
29. Disable the focus plane if you want now
30. Change the current Focal Length to be something with the candle larger (~90 worked for me)
31. Change the Current Aperture to make the effect more subtle (~10)

## Cinematic Effects

32. Open 02_04_CinematicEffects level
33. Select Camera01 in the World Outliner
34. Details -> Lens -> Image Effects -> check Vignetting and set it to 0.6
35. Change the Grain Intensity to 0.2
36. Lens -> Camera -> Exposure -> Metering Mode (check box)
    a. Change auto exposure histogram to Manual
37. Go to Post Process -> Lens -> Camera section for setting shutter speed(1), iso(3200) and apeture manually (check boxes for default values)
38. Go to Lens -> Chromatic Aberration, check the intensity box and make it greater than 0 (1-5 range) "this effect is caused by the dispersion of colors as a result of the variation of the refractive index of the camera's lens" (often used to make it look like it was shot with a low quality lens)

      a.  Check Start Offset and make it 0.4 (moves effect from the center of the frame buffer to the edges)

## Bloom and Lens Flares

39. Open 02_05_BloomAndLensFlares
40. Put the scene in Game View mode (option from triangle in top left corner of the scene)
41. Select the PostProcessVolume in World Outliner
42. In the details panel, go to the lens section to see Bloom category
    a. Check the method and intensity boxes
    b. Bump the intensity to 2.5
    c. In the advanced section of the bloom, change size scale to 16
    d. Change all the tints to be towards a single color (yellow suggested)
43. In the lens flares section
    a. Check the intensity box and set it to ~90
    b. Set the Bokeh size to 3
    c. In the Bokeh shape setting click the dropdown menu
        i. Select ViewOptions (bottom right)
        ii. Select ShowEngineContent
        iii. Search for Bokeh & pick a texture
44. Play with the camera to see the effect

You're done!