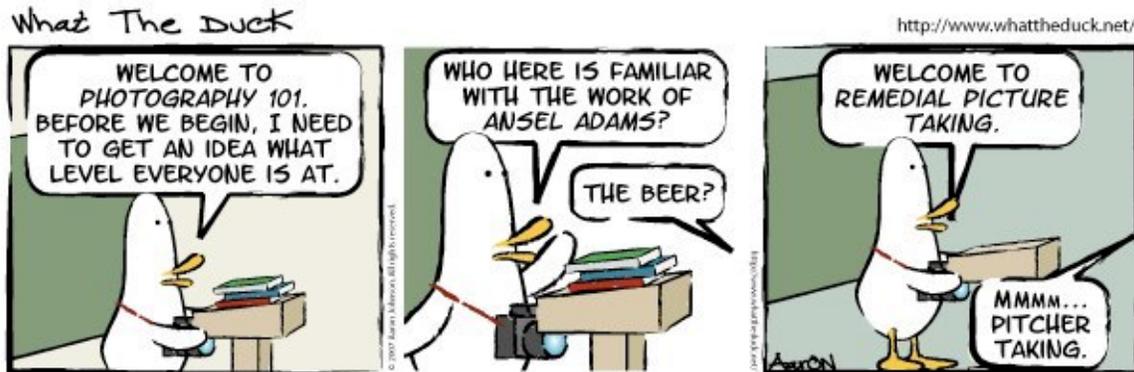


Keep an I[SO] Out

Assignment #1. Due 7:35PM on Monday, February 23, 2009.



Part I. Pick Your Favorite! (20 points)

1. (14 points) A photography course would be remiss to not mention Ansel Adams. Best known for his photographs of the western United States, he is often credited as one of the original American masters of photography. He has written two of the recommended (but not required!) textbooks for this course, *The Camera* and *The Negative*, that remain relevant today for their exploration of exposure and a camera's construction. Even if you do not recognize his name, you have probably seen some of his work. Take a look at this gallery of photos:

<http://www.anseladams.com/ansel-adams-photography.html>

His works are highly regarded masterpieces of composition and expert execution of the technical aspects of photography, but the subject matter does not interest everyone. Although great, some people favor other genres of photographs.

It is this that we would like to find out. What is your favorite photograph? Please send your favorite to us! It need not be one by Ansel Adams; it may be a photograph you have taken, one your friends have taken, or just one you have randomly found while procrastinating on the Internet! If you don't have a favorite, you may want to try looking around on Flickr to see if you can find one:

<http://flickr.com>

From the home page just search for some keywords that interest you (cars? boats? planes? or even trains?) and find one! It should ideally be a photo that you find truly striking and one that is not so small that you miss out on important details.

When you submit your photo, be sure to answer the following questions as well:

- Whose photo is this? Be as specific as you can. If you found the photo on a website, provide a link to it.
- List two (or more) different things that you find interesting about the photograph. Is it the subject? Is it how the photo is taken? Is it some technical detail or an effect you would like to replicate in your own photos? Again, be as specific as possible.
- Take a harder look at the photograph you chose. What could be done better? Few photos are absolutely perfect. Is it slightly blurry? Are some details missing or difficult to see that you wished were more apparent? Could the timing of the photo have been better? Is anything out of place or awkward? This is your time to critique!

Before this assignments' due date, post your chosen photo to the course's forum:

- Be sure you log in to the forum with your provided forum username and password to submit your photo and your written answers. If you did not receive a username from us (and you have made sure it is not in your junk mailbox), please email us at **staff@cse7.org** right away so we can re-send your forum credentials.
 - Post your chosen photo in the "**Keep an I[SO] Out**" board in your own thread or as a reply to someone else's thread if the photo is somehow related. Just be sure you post in the correct board so you get full points!
 - To receive full points you must be sure you answer all of the above questions and your chosen photo in the same forum post.
 - There is no need to post your name or other identifying information when you post your submission. We will know it is you even if you keep your forum identification as "Anonymous".
2. (6 points) Now that you have found and described your favorite image to us and your fellow e7-ites, give them your support by responding to at least **two** separate photographs. Feel free to constructively critique the photo, describe what you like about the photo, or otherwise comment on the post. Any relevant response is fine, though the intent is for you to begin thinking about photos critically. It will be other photographs for now, but soon you will need to critique your own to isolate your best photographs.

Part II. Pick Your Brain! (30 points)

Unlike Part I, do not submit your answers for this part on the forum. Type your answers for the following questions in a word processor; we will accept Word Documents (**.doc**, **.docx**), PDF documents (**.pdf**), or plaintext files (**.txt**, **.rtf**). You will find submission instructions on the course website at least one week prior to this assignment's due date at the following location:

<http://cse7.org/submit>

3. (12 points) Name and explain the four factors that affect exposure. What is the relationship between all four factors and exposure? Be sure to explain the complex relationships among each; how does each affect exposure when the factor is increased and decreased, assuming other factors remain constant? How must each change (if possible) to compensate for other factors? How does each impact the photo's appearance when the factor is increased and decreased, assuming the exposure is able to remain the same? Reference photographs you took for Question 11 (see below) to bolster your response on how a change in each factor alters a photo's appearance. What other consequences, if any, must the photographer acknowledge when modifying each factor? You may find creating a table helpful in answering this question.
4. (3 points) Give two reasons why it is a good idea to shrink the size of a photograph when it is to be sent via email or posted to a website. What is a reasonable resolution to export your photograph when sending one via email?
5. (3 points) Suppose there is a properly-exposed photograph outdoors using the Sunny 16 rule. Another properly exposed photograph is taken indoors at ISO 800, $f/2.8$, and at $1/50$ of a second. How many stops darker is it indoors than outdoors?
6. (3 points) Calculate the minimum and maximum F-number of the human eye. Assume a focal length of 22mm, a minimum diameter of 2mm, and a maximum diameter of 7mm. Be sure to show all work for full credit.
7. (3 points) Some conspiracy theorists claim that the moon landings were faked because, among other things, there are no stars in the backgrounds of photographs allegedly taken on the moon. Their explanation is that the thinner atmosphere on the moon would make stars visible in photographs. Using your knowledge of exposure, support or refute this evidence in an explanation no longer than a few sentences long. Can this evidence be reasonably used as proof in the theory that the moon landings were faked?

Do not submit answers for numbers 8 and 9, below, since we will not have covered this material in time. Consider it a free 6 points! Please continue on to Question 10 in Part III.

8. (3 points) Explain, in a few sentences, how altering the F-number allows the depth of field to change. If the F-number increases, does depth of field increase or decrease? A good answer will include a diagram and a very brief discussion of the permissible circle of confusion.
9. (3 points) Is nearly every object in a photograph taken with a pinhole camera in focus or out of focus? Prove your answer as correct (you may use your answer to the previous question as evidence, if applicable). If you determine that all objects are in focus, and assuming the camera was perfectly still during the exposure, what are other possible explanations for a pinhole photograph to be blurry?

Part III. Pick Your Best! (50 points)

There are some general guidelines that apply for every photograph that you submit for this assignment:

- Photographs must be completely **unmodified and unedited**. Do not use any software to change the image size, retouch the image in any way, or attempt to compress the image; submissions must be straight from the camera.
- All submissions should be **original photos** taken by you for the purposes of this problem set.
- Submit photos only in the **JPEG** file format; this should be the default for many, if not all, cameras. If you prefer taking photos in RAW format, note your camera may have a "RAW+JPEG" setting where it will save a photo in both formats. Be sure to only submit JPEG photographs!

Unlike Part I, do not submit your answers for this part on the forum. You will find submission instructions on the course website at least one week prior to this assignment's due date at the following location:

<http://cse7.org/submit>

10. (18 points) Take at least, and submit no more and no less than, **18 photographs**. Each photograph should be of unique subjects (in other words, don't submit 18 photos of your cat!) and taken specifically for this problem set. The idea is for you to take photographs that you typically take with the camera you typically use.

Be sure at least 6 of the photographs you submit are of subjects or locations you can re-shoot in the future. We will ask you in a future assignment to revisit some of these photographs and attempt to retake them (after some modification and re-interpretation) so that you can observe how far your photographic skill has improved over the course of the semester!

11. (32 points) Take a series of photographs to accompany your answer for Question 3. The idea is that you will prove your answers about how each factor affects the appearance of the photograph while keeping exposure roughly the same. You will therefore be forced to change other factors to compensate. Here are some guidelines:

- Submit **4 photographs** per exposure factor to demonstrate how that factor affects the photograph. You should submit exactly 16 photographs for this question.
- You should be sure that the **effects are clear**: if you are demonstrating the effects of shutter speed, showing one photo taken at 1/500s and another at 1/1000s is unlikely to adequately show the difference.
- You must **isolate the effect** as best as you can. Even though you will have to modify other settings to keep your photos properly exposed you should minimize the effects of those settings as much as possible. When illustrating the effects of F-number, for example, you must keep motion blur at a minimum. Some overlap is unavoidable; do your best to isolate the factor's effect.
- Your photos should be **perfectly exposed**. Remember, we are not asking you to show how each factor affects exposure, we want to make sure you understand how each factor affects the appearance of the photograph while keeping exposure relatively constant. Your subject should not have any loss of detail in shadows or the bright regions. Under-exposing or over-exposing the background is sometimes unavoidable but it should not be distracting.
- Only use the **Manual Mode**. You will need (either by trial-and-error, calculation, or even good guessing) to set your own exposure values for all exposure settings. Various modes such as aperture priority, shutter speed priority, or any of the "basic" modes do not count as manual modes as the camera is still setting exposure values based on its own calculations. If your camera's manual mode does not let you override all three values, you will need to borrow one of the course's from Church Street lab. You do not need to manually focus; you may use autofocus.