PHOTO 1
MIDTERM REVIEW!
1. Shutter speed
2. Aperture
3. Depth of field
4. Point of departure
5. Light metering & grey cards
6. Bracketing
7. Equivalent exposures
8. Film speed
9. Parts of the enlarger & camera
10. Easels
11. Dodging & burning
12. Processing film
13. Darkroom chemistry
14. Photoshop
15. Principles of Composition
shutter speed
What is this?  
*shutter speed dial*

What does it do?  
*controls how long the shutter is open - in fractions of a second*

What does shutter speed TECHNICALLY control in your photograph?  
*how long the shutter is open - how much LIGHT gets in*

What does shutter speed CREATIVELY control in your photograph?  
*a sense of MOVEMENT or MOTION*
What does the “B” stand for?
“bulb”

What does it do?
lets you have complete control over shutter speed

How?
press the shutter release once to open the shutter, then a second time to close it

When would you use this?
if you want a REALLY long exposure time - maybe to show city lights at night, or the movement of water over a long period of time, etc.
What is this?  
*a tripod*

When do you use this?  
*at shutter speeds below 1/60*

What happens if you don’t?  
*it will be blurry and you will be disappointed. I promise.*
If you wanted to take a picture of a running man so that the action would be “frozen” - what shutter speed might you try?  1/1000

What if you wanted to “show movement” - how would you do that?  1/30 (blur)
1/30 & panning (sharper subject, blurred background)
aperture
What is this? **aperture ring**

What does it do? **controls the size of the aperture, measured in f-stops**

A low $f$-stop number = a **LARGE** aperture.

What does aperture size TECHNICALLY control in your photograph? **how large an aperture - how much LIGHT gets in**

What does aperture size CREATIVELY control in your photograph? **DEPTH OF FIELD**
depth of field
Depth of Field

- the “wall of focus”
- how much (forwards and backwards) of your image will be in focus
Depth of Field

If you want a great depth of field, what size aperture should you use? SMALL

Such as? f/16

If you want a shallow depth of field, what size aperture should you use? LARGE

Such as? f/1.4
point of departure
What are the settings for our “point of departure”?

\[ f/8 \quad 125 \]

How do we use point of departure?

as a STARTING POINT for light metering

Why are those settings our point of departure?

they give you a lot of room to make changes in your aperture and/or shutter speed, in either direction
light metering & grey cards
Remember that your camera’s ROBOT EYE (a.k.a. the light meter/sensor) is trying to look at what you’re photographing and find the MIDDLE VALUE.

If you try to get a light meter reading from a really dark or a really light area, your picture will not come out well because the robot eye will think that is the middle value.

Instead, try to meter from something IN THE SAME LIGHT as your subject, that really is a middle value. (Or you can use a grey card!)
A grey card can be used if you want to be sure you are metering from an “official middle value.”

I don’t want to brag or anything, but...

18 % grey
bracketing
What is bracketing?

taking the same photograph at different exposures

Why would you do this?

to make sure you get a good exposure - especially in situations that are challenging to meter, or for photographs that are really important to you

How do you bracket?

1. light meter

2. choose which setting you want to “keep” (aperture or shutter speed)

3. identify the 3 settings you will use when bracketing (the one directly across from the “keep,” and also “one up” and “one down”.)

4. take the three photographs
How do you bracket?

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2. choose which setting you want to “keep” (aperture or shutter speed)

3. identify the 3 settings you will use when bracketing (the one directly across from the “keep,” and also “one up” and “one down”).

<table>
<thead>
<tr>
<th>500</th>
<th>250</th>
<th>125</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>f/8</td>
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4. take the three photographs

  f/8 at 1/500     f/8 at 250     f/8 at 125
equivalent exposures
Equivalent Exposures

What are “equivalent exposures”?

different combinations of aperture/shutter speed settings that give you the same exposure (range of light/dark values)

Why do they matter?

• to help you make use of your CREATIVE controls (depth of field and the sense of movement) while still getting a properly exposed image

• to help you NOT use a tripod but still get a clear and properly exposed image
Let's say you are asked to shoot a photograph of a pinwheel in motion, for the “OMG it’s SPRING!!!” issue of a local magazine.

You find a pinwheel that is moving, and your camera’s light meter tells you that you should use 1/500 and f/2. This is the picture you get:

\[ f/2 \text{ and } 1/500 \text{ sec} \]

You’re really happy with the exposure (the range of light and dark values) but it totally doesn’t show motion. Like at all.

What should you do?
USING Equivalent Exposures

What setting was responsible for “freezing” the motion of the moving pinwheel? **shutter speed**

What could you do to create the sense of motion in your photograph? **lower the shutter speed**

Since you got the EXPOSURE right, that means you’re happy with the relationship between your settings, you just need to use a lower shutter speed such as perhaps 1/30 sec.

Use an Equivalent Exposure chart to figure out what aperture to use with 1/30 sec so that you have the same EXPOSURE that you had with 1/500 sec.
USE A TRIPOD

Using Equivalent Exposures

Use an Equivalent Exposure chart to figure out what aperture to use with 1/30 sec so that you have the same exposure as with 1/500 sec.

<table>
<thead>
<tr>
<th>500</th>
<th>250</th>
<th>125</th>
<th>60</th>
<th>30</th>
<th>15</th>
<th>8</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>f/2</td>
<td>f/2.8</td>
<td>f/4</td>
<td>f/5.6</td>
<td>f/8</td>
<td>f/11</td>
<td>f/16</td>
<td>f/22</td>
</tr>
</tbody>
</table>

These images are equivalent exposures.

USE A TRIPOD

500

f/2

30

f/8
film speed
Film Speed

*refers to the level of light in which you can photograph*

What changes?

*the size of the silver particles*

What is ASA/ISO?

*scales we use to measure film speed*

---

**LOW** speed film has **SMALL** silver particles.

*it can be only used in situations that have HIGH levels of light*

**HIGH** speed film has **BIG** silver particles.

*it can be used in situations that have LOWER levels of light*
You can think about film speed like little light sponges. Or like pixels.

LOW speed film has **SMALL** “pixels.”

- low light-sensitivity
- low contrast
- low visibility of grain (“pixels”)
- needs a lot of light or time

HIGH speed film has **BIG** “pixels.”

- high light-sensitivity
- high contrast
- high visibility of grain (“pixels”)
- needs less light or time
parts of the camera
Single Lens Reflex Film Camera

take up spool

1. sprockets

2. viewfinder

3. film compartment

4. tripod mount

5. shutter

6. pressure plate

7. shutter speed dial

8. hot shoe

9. film rewind

10. film advance lever

11. shutter button

12. aperture

13. reflex mirror

14. lens

15. aperture ring

16. camera back

17. viewfinder

18. prism

19. aperture

20. reflex mirror

21. shutter

22. film

Aperture is measured in f-stops:

2 2.8 4 5.6 8 11 16 22

Shutter speed is measured in fractions of a second:

1/1000 1/300 1/150 1/60 1/125 1/250 500 1000
parts of the enlarger
Parts of the Enlarger

- lamphouse
- negative carrier
  goes here
- bellows
- easel goes here
- height adjustment knob
  moves EVERYTHING
  up and down
- grain focuser
  magnifies grain of
  negative to focus it
- fine focus
  moves the bellows
  up and down
- timer
  controls exposure times
Parts of an enlarger

- bulb
- housing
- condenser
- negative carrier
- bellows
- lens

- post
- focusing knob
- knob to position image size

- spreads out light evenly
- focuses & moves the bellows up and down
- raises lamphouse
- adjust aperture here
the easels
This is a **CONTACT** easel.

It is used when making:
- contact sheets
- pinhole positives
- collage negatives
- photograms

This is a **PRINTING / MASKING** easel.

It is used when making:
- enlargements from negatives

It helps your prints have:
- neat, white borders
- regular sizes
dodging & burning
Dodge & Burn

Dodging and burning are darkroom (and Photoshop!) techniques used to change the exposure of PART of your image - when PART of an image is too light or too dark

To **DODGE** is to “protect” an area from light while you further expose the rest of the image.

To **BURN** is to further expose one specific area of an image to make it darker while you “protect” the rest of the image.
For example:

The arabber (fruit merchant) is too dark because of incorrect metering; but reducing exposure to the whole image in the darkroom would also get rid of what little detail there is in the background.

We should “protect” the arabber at a lower exposure, while further exposing the background.

This is called **DODGING**
How to Dodge (a very basic tutorial)

1. expose the image until you are happy with the arabber’s levels
2. cut out a cardboard “protector” that is about the same size as the arabber
3. move the “protector” up and down under the enlarger lamp while exposing the background further
4. ta-da!
Dodging before after
For example:

The white floral arrangement in the lower right hand corner is far too light and takes away from the rest of the image, which is properly exposed. Increasing exposure to the whole image in the darkroom would make the majority of the image far too dark.

We should further expose ONLY the white flowers, while “protecting” the rest of the image.

This is called ________)

Dodge & Burn

BURNING

___________
How to Burn (a very basic tutorial)

1. expose the image until you are happy with the levels in the majority of the image
2. cut out a cardboard “protector” that protects everything except the white flowers
3. move the “protector” up and down under the enlarger lamp while exposing the white flowers further
4. ta-da!
Burning

before

after
processing film
Loading Your Film:
What goes into the changing bag?

- tank (including lid & post)
- 2 reels
- film opener
- your film
Processing Your Film (the condensed version)

1. Water Rinse!
Processing Your Film (the condensed version)

2. The 1st chemical to go into your tank is ________ DEVELOPER.

Developer is dependent on ________ and ________ TEMPERATURE.
Processing Your Film (the condensed version)

3. The 2\textsuperscript{nd} chemical to go into your tank is \textbf{STOP BATH}.

What does stop bath do? 
\textit{arrests the developing process}

What can you substitute for stop bath? 
\textit{water}

Exhausted when? 
\textit{turns purple}
4. The 3\textsuperscript{rd} chemical to go into your tank is \textbf{FIXER}.

What does fixer do?

\textit{removes unexposed silver from the film}

Fixer is the only chemical that cannot \textit{EVER} be...

\textit{poured down the drain}

Exhausted when?

\textit{Hypo Chek turns cloudy}
Processing Your Film (the condensed version)

5. Water wash!
6. The 4th chemical to go into your tank is ____________ PERMA WASH

What does Perma Wash do?

*Perma Wash is like soap for your film - it removes the fixer and other gross things*
Processing Your Film (the condensed version)

7. Water wash!
Processing Your Film (the condensed version)

8. The 5\textsuperscript{th} chemical to go into your tank is \textbf{WETTING AGENT}.

What does Wetting Agent do? 
\textbf{WATER + WETTING AGENT} prevents water spots from forming on your negatives, similar to that stuff at the end of a car wash or in your dishwasher.
Processing Your Film (the condensed version)

CHECK YOUR FILM!

OH NO!
What happened?
PROBLEMS

Completely clear film except for the leader and film info (film type and frame numbers):
   \textit{Film never advanced in the camera}

Completely clear film, even the leader and film info:
   \textit{Used fixer before developer}

Completely black film:
   \textit{Film was accidentally exposed at some point}

Bottom half of film is developed:
   \textit{Film was on the top spool with only 10 oz. of chemicals}

Film is cloudy and purple looking:
   \textit{Not fixed long enough or fixer is exhausted}
darkroom chemistry
what do I do?

- water: cleans the print (washes off all the chemicals)
- fixer: stabilizes the image (removes unexposed silver from the paper)
- stop bath: stops the developing (low pH = acid, neutralizes the developer)
- developer: develops the paper (oxidizes silver) (pH 11 or 12 = base)

how long?

- water: N/A
- fixer: 3 minutes
- stop bath: 30 sec
- developer: 1 1/2 minutes (90 sec)

I am exhausted and should be replaced when...

- water: N/A
- fixer: if I get cloudy when you drip hypo check in
- stop bath: if I am a dark purple color
- developer: if I am a brown color
Photoshop

(but only a few things)
I want to **select** an area of my image (because then I can copy it, delete it, or change it!)

What are some ways I can do this?

*The marquee tools* make rectangular, elliptical, single row, and single column selections.

*The lasso tools* make freehand, polygonal (straight-edged), and magnetic (snap-to) selections.

*The Quick Selection tool* lets you quickly “paint” a selection using an adjustable round brush tip.
I just want to **MOVE** something, and it isn’t working, and I want to destroy the computer. (I feel this way sometimes too.)

How can I make it move?
I want to **restore** / **touch-up** an area of my image. What are some ways I can do this?

- **The Clone Stamp tool** paints with a sample of an image.
- **The Healing Brush tool** paints with a sample or pattern to repair imperfections in an image.
- **The Spot Healing Brush tool** quickly removes blemishes and imperfections from photographs with a uniform background.
- **The Patch tool** repairs imperfections in a selected area of an image using a sample or pattern.
I want to **add text** to my image.

What is one way I can do this?
Ok. It’s time to save my image. What should I consider?

Do I have separate layers that I want to KEEP separate (in case I want to make changes later)?
- save as a .PSD (Photoshop document) to preserve layers and other options
- .PSDs are totally awesome, but they are also large and not Internet-friendly

A tool isn’t working what could be wrong? make sure I’m in the right layer

Do I want to post the image on the Internet? (example: Mahara)
- you need to “flatten” the image: Layer>Flatten Image
- and save it as a .JPG File File>Save As... Format: JPEG

Then what?
- save it to the desktop AND then drag it to my folder in the dock.
principles of composition

(review these by clicking on the “Principles of Composition” tab at the top of our class blog)