

# **Mountain View College**

## **Photo Lab Manual**

**PHOT 1316 / ARTS 2356**

**PHOT 1317 / ARTS 2357**

**PHOT 2356   PHOT 2357   ARTS 2389**

**Continuing Education Darkroom Classes**

Student's Name \_\_\_\_\_

Instructor's Name \_\_\_\_\_

Course Name & Number \_\_\_\_\_

Acknowledgments:

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# Introduction

The Mountain View Photo Lab Manual was created in order to provide guidelines and instruction for those students taking photography classes that involve lab use. This manual is designed to discuss these procedures as they apply to *our* particular lab, and to be used as a supplement to your textbook. If you are a beginning student and have never worked in a darkroom, this manual will familiarize you with basic information about darkroom procedures as they are carried out in this lab. If you are a more advanced student, you will find this manual to be a valuable reference for more advanced processes and techniques.

It is suggested that you keep this manual with you when you come to class, since your instructor may refer to it during lectures or demonstrations. It is also recommended that after a demonstration of a specific process, you review the pertinent material in this manual before attempting to do the process on your own.

At Mountain View we have several instructors teaching photography classes that include darkroom use. Because of this, it is not unusual that students in different class will learn photographic processes in slightly different ways. It is suggested that you follow your own instructor's advice and use him/her as your primary resource for information on photo techniques. As you become more experienced as a photographer, you will develop particular ways of doing things that work best for you. The photo lab manual is a quick reference guide to help you access information that is necessary to know, and most commonly utilized, in this lab.

# Photo Lab Rules and Regulations

Because there are many students who enroll in the photography program each year, it is extremely important that the rules of the area be understood. Each student is responsible for helping to maintain the photo lab facility in order to keep a clean and safe working environment.

1. To have access to the darkroom you **must** be enrolled in one of the **credit** photography **lab** courses at Mountain View College listed in the front of this manual during the current semester.
2. **Visitors are not allowed in the photo lab.** Have all friends, spouses, and significant others meet you outside the lab and classroom areas.
3. No food or drinks are allowed in the photo lab area.
4. Access to chemicals is **off limits** to all students.
5. Students are not allowed to work in the darkroom when their class is in session without the permission of the instructor.
6. Studio use is only for advanced photography students who have been trained in the use of our lighting system.
7. Students must fill out a form to secure the use of a locker each semester, and must provide a combination lock for his/her locker.
8. Students whose classes are in session will have priority to work in the lab. Occasionally instructors will conduct demonstrations with classes and they may ask you to wait or leave during that session.
8. All "Dry Areas" must be kept **clean and dry** at all times. Dry areas include: enlarging stations, negative cutting and negative viewing table, classroom table-tops and all computer and studio areas.
9. Chemical or water spills must be cleaned up immediately.

10. If while developing film you "pour back" chemistry into the wrong container, notify an instructor or lab assistant immediately.
12. You **must** have a towel to work in the lab.
13. Do not dump or adjust any of the solutions in the printing room. All chemistry will be prepared by the lab assistant. If a problem arises, see an instructor or lab assistant.
14. **Never touch any equipment if your hands are wet.**
15. Do not use the enlargers to read by. These lights have a short life span and should only be used for short periods of time.
16. All wet prints **must** be carried in a tray.
17. No fiber paper is ever put into the RC (resin-coated) paper dryer.
18. Do not leave your enlarging station for an extended period of time without closing down your station completely.
19. Clean up after yourself. Replace what you've taken. Turn off what you've turned on if it's not being used.
20. If in doubt -- **Please Ask!**

# Photo Lab Hours

The lab hours apply only to credit photography classes and can only be utilized by currently enrolled students in the photography department. Lab hours will be posted according to the classes and student enrollment each semester.

**LAB HOURS ARE SUBJECT TO CHANGE SO ALWAYS CHECK WITH YOUR INSTRUCTOR OR A LAB ASSISTANT AT THE BEGINNING OF EACH SEMESTER TO DETERMINE THE CORRECT TIMES FOR THAT SEMESTER.**

**Lab hours for Summer sessions are only scheduled during the class time.**

## Lockers

All students enrolled in a credit photography lab class at Mountain View College will be offered a locker space for the duration of the course. The purchase of a combination lock is the student's responsibility. **All combinations of locks must be registered with a lab assistant or your instructor before a locker can be assigned.** It is not uncommon for some students to forget their combination or locker number. These are available to you in the lab if the need arises. Lockers **must** be emptied at the end of each course. Anything left in lockers after the course is over becomes the property of the Mountain View College Photography Department unless other prior arrangements have been made. We suggest that you put your name on all personal items in case they get misplaced.

# Lab Safety

At the beginning of each photography course taught which involves lab use, students are given a hazardous materials orientation to make them aware of the safety procedures to follow and the location of documentation to reference. Although the photo lab area is a relatively safe environment, there are some precautions that should be kept in mind.

## Chemistry

The chemicals used in the lab are, for the most part, well-diluted solutions and are safe if not taken internally or absorbed over time by the skin. It is for this reason that it is required that students use tongs with printing chemistry. This will also reduce the risk of contamination, the staining of prints, and skin irritations.

## Electricity

Make sure your hands are dry before touching any piece of electrical equipment. Any loose connections or malfunctions in equipment should be reported to the lab assistant or your instructor immediately. Turn off your enlarger before leaving the darkroom. Make sure that the RC print dryer and dry mount presses are turned off when not in use. Unplug the tacking iron after use.

## Cutting

All equipment such as paper cutters and mat cutters, exacto knives and loose blades, should be used with care. All have extremely sharp blades, which demand concentration when used.

# Hazardous Materials Training Session Overview

## **I. Location and Identification of Chemicals**

### **A. In the film developing area there are the following containers of chemistry:**

Kodak T-Max Film Developer

Kodak Dektol Developer

Kodak Indicator Stop Bath

Kodak Rapid Fixer

Orbit Bath, PermaWash (Hypo Clearing Agents)

Kodak Photo-Flo 200 solution

### **B. In the printing area there are the following chemicals:**

**In original containers:** (Back of Lab)

Kodak Dektol Developer

**In trays:**

Kodak Dektol Developer

Kodak Indicator Stop Bath

Kodak Rapid Fixer

All of these containers have safety labels attached for quick reference.

See sample on the next page.

# Safety Label

## HEALTH HAZARD (Blue)

- 4 -- Deadly
- 3 -- Extreme danger
- 2 -- Hazardous
- 1 -- Slightly hazardous
- 0 -- Normal material

## FIRE HAZARD (Red)

- Flash Points
- 4--Below 73°F
  - 3--Below 100°F
  - 2--Below 200°F
  - 1--Above 200°F
  - 0--Will not burn

## SPECIFIC HAZARD (White)

- Oxidizer            OXY
- Acid                ACID
- Alkali              ALK
- Corrosive          COR
- Use No Water      W
- Radiation Hazard

## REACTIVITY (Yellow)

- 4--May detonate
- 3--Shock and heat may detonate
- 2--Violent chemical change
- 1--Unstable if heated
- 0--Stable

The label is divided into four color coded boxes. Blue for Health Hazard, Red for Fire Hazard, Yellow for Reactivity, and White for Specific Hazard. The Health, Fire, and Reactivity boxes are rated from numbers 0-4 with zero being the least hazardous and four being the most hazardous. The Specific Hazard box will identify particular precautions.

## **II. Handling of Chemicals**

### **A. Protective Equipment**

Because the chemicals students have contact with are fairly diluted, it is usually not necessary to wear protective equipment. There are some people whose skin is very sensitive to some of the solutions, and therefore, it is recommended that gloves be worn to prevent rashes or itching. The gloves can be purchased in any pharmacy or grocery store and are the responsibility of each student. In addition, always wash your hands after using any of the chemicals.

### **B. First Aid Treatment**

We strongly impress upon students not to put their hands in any of the chemicals. Some of the solutions, specifically the fixer and stop bath, are mild acids and can sting you if there are any cuts on your hands. If this happens, rinse with water. If you get any of the chemicals in your eyes, there is an eyewash station located in the lab. Place eye down into the wash cup and squeeze the bottle to rinse out your eye. Report any accidents to the lab assistant or your instructor as soon as possible. If necessary you will be taken to the Health Center or the College Police will be notified. The Health Center is located in Room T110. Hours: Mon.-Thurs. 8:30 a.m. - 8:00 p.m. and Friday 8:30 a.m. - 3:00 p.m.

### **C. Clean-up of spills**

Any spills should be reported to the lab assistant or instructor immediately. This is not so much because of the danger inherent in the chemicals, but due to the fact that when the floor is wet it gets very slippery--which could be dangerous.

### **III. Material Safety Data Sheets (MSDS) and Chemical Inventory**

#### **A. What the MSDS tell you**

The MSDS are detailed reference publications on chemicals used in the Photo Lab. Each chemical listed is comprised of about twelve sections which are as follows:

- Identification
- Product and Component Hazard Data
- Physical Data
- Fire and Explosive Hazard Data
- Reactivity Data
- Toxicity and Health Hazard Data
- Personal Protection and Controls
- Special Storage and Handling Precautions
- Spill, Leak, and Disposal Procedures
- Environment Effects
- Transportation
- References

#### **B. Where to find the MSDS**

All the sheets are kept in a 3-ring binder in a plastic document holder attached to the wall immediately to the left of the classroom door as you exit the classroom.

#### **C. What the Chemical Inventory Sheets tell you**

These sheets list all the chemicals used in the lab and each manufacturers name, address and telephone number. The CAS Number refers to individual components which are considered hazardous and will have numbers listed.

#### **D. Where to find the Chemical Inventory Sheets**

These sheets are kept in the 3-ring binder with the MSDS in the plastic document holder attached to the wall immediately to the left of the classroom door as you exit the classroom.

# **Notice to Employees and Students**

## **The Texas Hazard Communication Act of 1985, Texas Civil Statutes, Article 518b, requires certain employers to:**

provide employees, local fire departments, the Texas Department of Health, and other interested persons with specific information on the hazards of chemicals in use. As required by law, your employer must provide you with certain information and training, starting January 1, 1986. A brief summary of the law follows:

1. Employers must develop a list of hazardous chemicals used or stored in the work place, each in excess of 55 gallons or 500 pounds. Smaller quantities may be reported. This list shall be updated by the employer as necessary, but at least annually. The list must be sent to the Texas Department of Health at least annually, to be made available to the general public on request.
2. Employees who may be exposed to hazardous chemicals shall be informed of the exposure by the employer and shall have ready access to the work place chemical list and to the most current material safety data sheets, which detail physical and health hazards and other pertinent information. The list must state which chemicals are present in each work area.
3. Employees shall receive training by the employer on the hazards of the chemicals and on measures they can take to protect themselves from those hazards, and shall be provided with appropriate personal protective equipment. This training shall be provided at least annually and must be reported by the non-manufacturing employer to the Texas Department of Health within 30 days of completion.
4. Employees shall not be required to work with hazardous chemicals from unlabeled containers, except portable containers for immediate use, the contents of which are known to the user.
5. Employers must provide the names and telephone numbers of knowledgeable company representatives to the local fire department, as well as other information if the fire department requests it.

6. The following chemicals are exempted from coverage by this act: articles that do not normally release hazardous chemicals, food, cosmetics, pesticides for use (but no pesticide formulation), hazardous waste, and some other materials. Most of these are covered by other acts. Manufacturers are exempt from some provisions of the State law since they are covered under similar rules adopted by the Federal Occupational Safety and Health Administration (OSHA).
7. Employees may file complaints with the Texas Department of Health, and may not be discharged or discriminated against in any matter for the exercise of any rights provided by this act. Employees and citizens may make written requests to the Texas Department of Health to require listing of small quantities of certain highly hazardous chemicals.

**Employers may be subject to administrative penalties and civil or criminal fines ranging from \$500 to \$25,000 for violations of this act.**

Copies of specific MSDS can be made available to students by request. Please feel free to ask the instructors or instructional assistants any questions that relate to safety in the photo lab area.

# Darkroom Etiquette

The photo lab area is an environment that is shared by many students each semester. Because of this, you cannot afford to be selfish. The dripping of chemicals, contamination of solutions, and not cleaning up your work area, cannot only ruin your negatives and prints, but also those of others. This is why attention to certain points of darkroom etiquette area emphasized with respect to specific procedures that are described in this manual. For now, please take note of the following general rules for cleanliness and decorum:

## 1. **If in Doubt, Rinse it Out!**

To safeguard your work from chemical contamination, rinse out with hot water any tanks, reels, beakers, thermometers, or tongs that might be left on the sinks before using. Never assume that any piece of equipment lying around has been cleaned. Check carefully equipment that has been put back into its proper place for stains (dark or white residue) before using. Rinse clean if necessary.

## 2. **Don't Drip!**

When developing your film, keep your tank over the sink at **all** times. When taking prints out of the darkroom to view or to dry, make sure they are in a tray to catch any water.

## 3. **Keep Your Hands Clean!**

A cotton towel is **mandatory** for every student to have in the photo lab. Some students have attached a clip through their towel and fastened it to their belt loop to assure its always available for drying hands. Rinse your hands immediately after contact with chemicals. Special care should be taken to make sure that your hands are clean before handling photo paper while printing.

## 4. **Clean Your Workspace!**

Before leaving the film developing area, rinse out all equipment used and return them to their proper place. Before leaving the printing area, clean up your station. Any scraps of paper or tape should be disposed of in the garbage.

**5. No Food or Drink!**

Keep all food and drinks outside of the photo lab area.

**6. Knock and Lock!**

Always knock before entering the film loading room. Once inside, shut the door tightly.

**7. Non-Cooperation with Darkroom Etiquette**

Any student who fails to comply with the basic points of darkroom etiquette as requested by his/her instructor or lab assistant will be expelled from the lab.

# Film Development

The quality of your print is in a direct relationship to the quality of your negative. One of the most important steps in producing a photographic image is the development of the film. If a good negative is not properly processed, no amount of "darkroom magic" is going to produce a satisfactory print. Each step in the development process should be followed to the letter, exact measurements made, and uniform handling of the film followed.

Film must be loaded onto reels in **total darkness**. After entering the film-loading room, **make sure that you shut the door tightly. Never enter a film-loading room without first knocking.** When loading film, all lights **must be off**. The film loading room has can openers and scissors available for use in removing your film from the original canister. Please remember to clean up the area and discard all scraps when you have finished loading your film.

# Loading Film

You will need your **film**, a **metal tank** with enough **reels** to fill your tank, and a **plastic lid** with a **cap**. Lay these out on the counter top in the loading room so you have some idea where they are in the dark. In your class you will have a demonstration on how to load the film onto the reels. There is film in the classroom to use to practice with before rolling your own. When you're ready:

1. **Shut the door**, turn off the light, using a can opener, pry off the flat end of the film cassette.
2. Take the film out and cut the narrow lead of the film.
3. Begin rolling onto the reel.
4. When complete, place rolled film into the tank and cover with the lid.

**NOTE:** If you have a difficult time rolling the film, **do not** turn the light on or open the door. Place film, **as is**, into a tank and cover with the lid. Find an instructor or lab assistant and ask them to help you. If you have rolled the film onto the reels but would like it checked, the staff will do this for you.

## 1. Development:

For **each** roll of film, measure the amount of T-Max Developer needed into a measuring beaker. Check the temperature. Check the Time/Temperature developing charts on the wall for the correct development time based on the temperature of the developer. Set the timer for the required development time. Start the timer and pour into the top of the lid (small lid only) while holding the tank on an angle so liquid will not block up.

**Carefully watch when pouring all chemicals into your tank to prevent spills and overflows.** Place the cap on the lid, hold the tank top and bottom and agitate the first 15 seconds. Let the film sit and agitate 5 seconds of every 30 seconds until the development time is complete. Remove the cap and dump the solution down the drain.

**Notes:**

## **2. Stop Bath:**

Fill the tank with water and pour out 3 times with cold water to stop the action of the developer.

**Notes:**

## **3. Fixer:**

Fill the tank with fixer and agitate the first 15 seconds and 5 seconds every 30 seconds of fixing time. Six (6) minutes is recommended. **Pour back into the fixer container. This chemical can be re-used.**

**Notes:**

## **5. Orbit Bath (Hypo Clearing Agent):**

Fill the tank with this solution and agitate 5 seconds out of every 30 seconds for two minutes. **Pour back into the Orbit Bath container. This solution can be re-used.**

**Notes:**

## **6. Wash:**

Remove the reels from the tank and place onto the film washer and wash it for 5 minutes.

**Notes:**

## **7. Photo-Flo:**

Place film into the photo-flo container for 30 seconds. Do not agitate. Remove the film from the reel and hold diagonally over the sink to drain. Shake the reel to help dispel extra solution. Note: No sponges, squeegees, or fingers are needed to drain film. The less contact with the surface of the film the better.

**Notes:**

## **8. Dry:**

Make sure the dryer is turned off. Place your reel in the dryer. Dry for approximately 6 minutes. Check the bottom of the film to feel if dry.

**9. Wash and return all reels, tanks, thermometers, and measuring beakers to their proper place.**

**Notes:**

**10. Storage:**

Cut film into strips of 5 frames (35mm) and place into negative sleeves. Negatives should be placed into the page with letters and numbers on the edges readable and in numerical order.

**Chromogenic Black and White Film**  
**Iford XP 2 Film / Kodak T-Max T400 CN**  
**NOT RECOMMENDED FOR USE IN THIS LAB**

These are films that employ a dye to form the image similar to the dyes used in color negative film. **It must be processed in color C-41 chemistry.** Although these are excellent films, it is not recommended for a first semester's works. Many express color labs carry these Black and White films, as these may be the only Black and White films they can process. **Do not process these films in our lab.** Ask specifically for the film recommended on your syllabus.

## **The Enlargers**

This lab utilizes several different kinds of enlargers. Students must be checked out on the use of the different kinds of enlargers in the printing areas prior to being able to work with them. **Be sure to ask questions if you have any problems.**

Each enlarger has a negative carrier. To access the negative carrier, you have to raise the enlarger head and extract the carrier. **Never pry the head open, always use the handle on the enlarger to raise the head.** Once you have the negative carrier, open it and place your negative, shiny side up with the brand name of the film upside-down and backwards. This insures your image will project right-side-up on the easel.

- When placing the negative carrier into the enlarger make sure the enlarging light is off so light won't spill out to the rest of the lab. Place the negative carrier inside the opening with the **four pins facing down**. It should drop down into place. Lower the enlarging head.
- To raise or lower the enlarger, up or down, consult your instructor on the uses of your particular enlarger so you will know how to reach the necessary height for the print you wish to make. The higher the enlarger head is raised, the larger the projected image is going to be. When you are finished printing for the day, always leave the enlarger at its lowest level with the head down.

## The Lens

The lens has an aperture which opens and closes like your camera lens. There are f/stop numbers on the lens which you can't always see in the darkroom, so it is important to know the f/stops in order. If you're using a 35mm negative, you should have on a 50mm lens. These lenses have an f/stop range from f/2.8 (wide open) to f16 (closed down). If you know the sequence (f/2.8, f/4, f/5.6, f/8, f/11, f/16) you can always find the setting you want to use. For example: If you want to use f/8, close down all the way (least amount of light) and open up two stops to f/8. When the enlarging light is on you can see it get brighter and darker as you turn the aperture ring.

## To Focus the Image

To Focus, open the lens aperture to f/2.8 to project the brightest amount of light and place the Grain Focuser on top of the easel. While looking through the eye piece, turn the **Focusing Knob** slowly on the left or right side until you see what looks like fine sand granules. This is the grain of the negative. The image is now in sharp focus. Don't forget to stop the lens down to the f/stop you're going to use for the exposure. Make your exposure as soon after focusing as possible because focus will shift due to enlarger movement or negative buckling. **Always refocus before making an exposure.**

# The Timer

Each enlarging station has a timer in it. The timer works much the same way as the shutter speed in your camera. It will open the shutter in your lens and allow light to travel through your negative to the printing paper in your easel located on the baseboard of your enlarger. MVC has several kinds of timers, so be sure you understand how the timer in your station works before you expose your paper. Your instructor will demonstrate the use of the MVC timers prior to the first printing assignment. Ask questions if you do not understand!

## Printing

These instructions are a guide to help reinforce your instructor's lessons on making contact sheets and enlargements. If you have any darkroom and lab experience, you might find that these procedures may vary from what you know. Please follow **these** steps as they will apply to our specific photo-lab system. Here are some general guidelines for printing in the darkroom.

1. You **must** have a towel when working in the lab for spills that can occur or for wiping wet hands.
2. Dress down for lab work as chemicals being used can stain clothing.
3. **Do not** put your hands into the printing solutions for several reasons: A) Your skin will absorb the chemicals. B) This can cause contamination of the chemistry. C) This can create stains on the prints.  
**So always use the tongs to handle prints in the trays.**
4. When you pick up a print with the tongs, let it drain for a few seconds over the tray. Do not shake the print because this could spray chemistry.
5. Agitation of prints in the tray is crucial to image quality. Rock trays by lifting one corner up and down slightly. This will give a fresh flow of solution to the prints. (This is important because solutions can exhaust in one area if not moving.) Air pockets can block out chemistry, and prints can stick together. All these can cause an uneven distribution of solution to the print, which can cause discoloration and weak image quality.

**Do Not Leave a Print Unattended in the Chemistry!**

6. Always process your print going from **Developer**™ to **Stop Bath**™ to **Fixer**™ to **Rinse**™ to **Wash Cycle**. Never go back the opposite way - this will contaminate the solutions.
7. Leave your prints in the solution for the recommended times. If your print comes up too fast and too dark in the developer, don't try to save it! The resulting print will be flat and muddy with uneven development. Go back to your enlarger and recheck your aperture setting (It could have been left wide open) and/or decrease your exposure time.
8. If the print develops too light, adjust the aperture to allow more light through (open up) and/or increase exposure time. **Note:** Your test strip should be a good indicator of approximate exposure times. Remember: The more light that strikes the paper, the darker the print will be.
9. Viewing prints to judge exposure or overall quality of the print should always be done in the classroom under white light. Do not try to judge a print under safelight conditions because this will not give you an accurate assessment of your image, i.e., exposure, sharpness, scratches or dust marks, burning, dodging, and contrast decisions, etc.
10. Whenever you take a wet print away from the sink for viewing, rinse the print in water for a few seconds to remove some of the chemistry. Place wet prints in a tray and drain to avoid getting the floor wet.
11. The enlarging stations are dry areas. Any wet materials (trays, prints, etc.) must be kept away from these stations.
12. **Open your box of paper only under safelight conditions.**

# Making a Contact Sheet

The contact sheet allows you to see in print form all of the images on a roll of film, and to evaluate how well you are judging exposure when taking pictures.

1. Make sure the Power Switch is **ON** to the timer (see Timers). Start by setting the aperture at f/5.6 and setting the timer to 3 seconds.
2. With no light being projected, lift up the glass and place one 2" strip of paper, emulsion side (shiny) up, on the baseboard. Place one strip of your negative in the negative sleeve emulsion side (dull) down onto the paper strip. Place the glass on top of the negatives and paper strip.
3. Using a piece of cardboard, cover up all but 1/2" of the first frame and expose for 3 seconds. After 3 seconds, move the board to the middle of the next frame and expose for 3 more seconds. Keep doing this until you've exposed the entire strip.
4. Remove the strip, watch the clock, and slide the strip (emulsion up) into the **Developer** face up and agitate constantly for 1 1/2 minutes for RC Paper and 2-3 minutes for Fiber paper. Place into the **Stop Bath** face down for 30 seconds with agitation, then into the **Fixer** face down for 1 minute.  
**Note:** This time is only for strips **not** to be saved.
4. Rinse the strip in water to remove **Fixer** and put into a tray. Come out to the classroom to look at the exposures. NEVER GAGE EXPOSURE UNDER DARKROOM LIGHTING CONDITIONS.

6. Looking at the sprockets you will notice divisions of exposures. Starting at 3 seconds (the lightest section) find the point where the sprockets go to black and there is no separation between exposures. Count from light to dark by threes to find this point. For example, 3, 6, 9, 12, with 12 seconds the last exposure where divisions can be seen. Do not judge the time to use by the images in the frames. How those images look (their relative lightness and darkness) can vary because of bracketing or miscalculating lighting conditions during the picture-taking process.
7. Once you find your time, set the timer for **that** time. Place the negative sleeve with all of the negatives on top of a fresh sheet of paper under the glass and expose for the time selected.
8. Process in trays for times given for the test strip, except Fix the full time. Use the results of the contact sheet to judge how well your picture-taking exposures are working, as well as any film processing problems that need to be addressed.
9. You need to use the "sprocket test strip method" only once if the variable remains the same. In other words, if you use the same film, paper, chemistry, dilution ratio and temperatures for film and paper processing, and the same enlarger, then you need not retest. But if **any** of these variables change, you must retest.

If your images on the contact sheet look **too dark**, then (given proper film development and the camera is functioning correctly) you are underexposing the film. Try cutting the ASA/ISO rating in half (400 to 200, 100 to 50) and bracket in full stops when exposing the next roll of film.

If your images come out **too light** on the contact sheet, try doubling the ASA/ISO rating (400 to 800, 50 to 100, etc.) and bracket in full stops for the next roll you shoot.

If you have many images that are **too light** and **too dark**, this is more of a problem. Assuming again, that your camera is functioning properly, this is usually due to not making the correct exposure settings under various lighting conditions. Your instructor will help you correct this.

# Making An Enlargement

On your contact sheet find an image you want to enlarge. Look at the number underneath the image and find that frame number on your negatives. Remove the entire strip of negatives (5 frames) that includes the frame you want to enlarge. Find the negative carrier by raising your enlarger head. Bring the carrier and your negatives out into the front room where film developing is done. Place both on the light table.

1. Open the negative carrier and place the strip inside with the frame you chose in the rectangular space for a 35mm negative. **Note:** the emulsion of the film (dull side) should be facing down. Position the negative in the carrier so you can see all of it clearly.
2. Place the negative carrier in the enlarger with the carrier's 4 metal pins facing down.
3. Lift the easel arms up to adjust the size and set your easel for 6" x 9". Take out one 8" x 10" sheet of paper and write **Focus** on the back.
4. Place this sheet under the red lip slot on the easel for 8" x 10" (middle) and slide the paper about 1/8" to the left. This focus sheet will be reused and will give you a bright surface to view the projection on.
5. Make sure the power is on to the timer (See Timer). Press the **On** button to focus and project the image down to the easel. Raise or lower the elevation of the enlarger so that the projection is within the 6" by 9" frame on the focus sheet. Focus the image with the lens aperture wide open (most amount of light) at f/2.8.
6. Use the grain focuser for sharp focusing. (**Note:** Always recheck focus before making an exposure. The enlargers can shift focus and negatives can buckle.

7. Stop down the lens (smaller openings) to f/11 and set the timer for 3 seconds. Press the **Time button** and the enlarger light will turn off.
8. Remove the focus sheet from the easel and put it aside. Take out a test strip and place it in the easel emulsion side (shiny) up in an area of the image you consider to have the most important light and dark areas.
9. Cover up all but about 1/2 inch of the strip the long way using a piece of cardboard.
10. Push the **Start** button. This will time for 3 seconds. Expose another 1/2 inch and expose for 3 seconds. Continue to do this until you have exposed the full strip. Be careful not to move the strip between exposures as this will cause a blurred image. Hold the board to block light just above the strip to avoid this.
11. Process in tray for the same time as your test for making a contact sheet. Rinse and view the strip in a tray out in the classroom.
12. You should see a variety of exposures from light to dark. (Remember, the **lightest** exposure has the **least** amount of time, and the **darkest** the **most**.) Select the best time, which can also be between the test times. For example, if 6 seconds is too light and 9 seconds is too dark, 7.5 seconds could be used. If the strip is overall too dark, reduce exposure time and/or close down lens aperture to f/16 and redo the strip. If the strip is overall too light, increase exposure time and/or open up the aperture to f8 and redo the strip. (**Note:** the exposure time and aperture settings are only guides, they can change according to negative density, enlargement size, paper used, etc.)
13. Once you've decided on a time
  - a. throw away the strip;
  - b. reset the timer for the time selected;
  - c. press the **On button** to turn the enlarging light on;
  - d. refocus wide open on your focusing sheet;
  - e. stop down the lens and press the **Time button** to turn the light off;
  - f. take out a full sheet of paper and place it in the easel;
  - g. press the **Start** button to begin the exposure;
  - h. process the print the same way as with your contact sheet

# Enlarging Station Checklist

## Before you go to work

- Log in:            Print Name  
                      Class Section  
                      Time In

## Before you leave

- Turn off your enlarging light.
- Take your negative out of the negative carrier.
- Hang up the negative carrier by the handle on the left side of your station.
- Set enlarger at elevation #9.
- Turn off power switch on the timer.
- Set the easel to 6" X 9".
- Return any contrast filters to the filter box in the proper order.
- Place the grain focuser in the center of the easel.
- Clean up any scraps of paper or tape used.
- Log out:    Time out  
                  Initial

# Washing And Drying RC Prints

All the prints you are going to make must go through a complete washing. Prints being held in the rinse tray are **not** washed. When you are ready to wash:

1. Take your prints and any others in the rinse tray. Place them in the circular washer. Wash your prints for 5 minutes. Remove them, place in a clean tray and carry them to the RC dryer. Dry each print individually. Return the tray to the clean tray pile.
2. The setting for the temperature should be at number **9**, and the motor speed should be set at number **5**. **Do Not** change these settings.
4. Place prints into the dryer face up. They will feed in slowly. Make sure prints do not overlap. Test strips to be saved **should not** go into the dryer because they can get caught up in the mechanism. Air-dry strips you wish to save.
5. Keep all wet material in the big tray where paper feeds into the dryer. All the other tabletops are **Dry areas**.
6. Return wet trays to the enlarging areas.

# Washing and Drying Fiber Prints

The fiber paper used by advanced students has a different washing cycle than Resin-Coated Paper. Because solutions soak through fiber paper, it takes longer to clear the chemicals out. **Make sure you allow at least 45 minutes from the time you finish printing for the completion of this process.** Insufficient washing will result in discoloration, so follow these steps carefully:

**Use trays set up especially for washing fiber prints. DO NOT USE THE CIRCULAR WASHER TO WASH YOUR FIBER PRINTS. Prior to washing, the student must place fiber prints in a tray of hypo-clearing agent and agitate gently for 2 minutes prior to placing them in the trays set up for washing.**

1. Place prints from the Holding Tray (rinse water or hypo-clearing agent) into a tray approximately two (2) times the size of the largest size paper used. For example, if you are using 8" x 10" paper, place prints into an 11" x 14" tray. If you are using 11" x 14" paper, place prints into a 16" x 20" tray.
2. During the clean-up process, the student must pour the **orbit bath** back into its original container.
3. Turn on the water, adjust the hose or the faucet so the water flows directly and gently into the tray with the prints. The wash cycle depends on continuously flowing fresh water.
4. Wash prints for **45 minutes** and squeegee when done.
5. Place prints in your blotter book to take home, or place them on the screens in the lab.
6. To air dry, place prints face down on the drying screens located under the enlargers closest to the small sink. Prints will usually need to dry overnight.

(**Note:** Fiber paper prints will curl...it's just their nature. The degree of curl is based on the paper manufacturer, the size of the paper, and the amount of humidity in which they are stored. To reduce the amount of curl in the prints there are a couple of things you can do. 1. Let prints dry completely and place under weight for several hours. This will help to stretch out the fibers in the paper. Try using books for 8 X 10 inch paper, but any flat object with some weight will do. 2. Dry mounting and window matting prints. Dry mounting will flatten the entire print onto a board.

Window matting will hold down the edges of a print, which for smaller images won't show much waviness.)

**UNDER NO CIRCUMSTANCES SHOULD FIBER PRINTS BE PLACED IN THE RC DRYER. IT WILL RESULT IN CRINKLED PRINTS AND MAY BLOCK THE DRYER COMPLETELY, RENDERING IT USELESS.**

**STUDENTS USING THE RC DRYER FOR FIBER PRINTS WILL BE  
EXPELLED FROM THE LAB.**

# Printing with Contrast Filters

All beginning photography students are required to use Variable-Contrast Papers. These papers will allow you to change contrast (the difference between dark and light tones in a print) without changing to a different paper. Different paper manufacturers use different prefixes to designate a paper as variable-contrast. For example: Ilford - **Multigrade**; other papers may call themselves 'multicontrast'. All of these papers will allow for the use of filters to change contrast. The filter set is located in the cupboard to the left of the darkroom door when entering the classroom.

<u>Contrast Scale</u>												
Lowest	Normal											Highest
-1	0	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5+	

**Note:** A #2 filter used with a 'normal' negative, one that has all the tonality necessary to make a good print. The paper is made for the use of filters, so **ALWAYS USE FILTERS WHEN PRINTING IN THIS LAB.**

To create more midtones or grays, reduce contrast in the print by using the lower number filters below #2. To create darker shadows and brighter highlights, increase contrast in the print by using higher numbered filters above #2. Remember, a #1 filter will produce the lowest contrast and a #5+ filter will produce the highest contrast.

## Exposing with Filtration

Make sure you're projecting a **full** image. Focus your image with white light (no filter) because the filter blocks out some light and can make it difficult to see the image. Place the filter in the filter holder before exposing. Make a test strip using the filter to make an accurate exposure evaluation.

### **Remember:**

- When making a test strip, increase test time intervals. For example, 5 seconds, 10 seconds, 15 seconds, etc.
- Use only one filter at a time.
- Hold filters by the handle or on the sides whenever you touch them. **Do Not** put fingers on the acetate filter itself. They smudge and scratch **very** easily. **Do Not** attempt to clean them.
- Return filters to the filter storage tray in their proper order.

# Retouching Prints

It is unavoidable that most prints will need to be retouched. Whenever you enlarge an image, any dust, lint or UFO that is sitting on the negative surface hitchhikes a ride and grows with the enlargement size. Even with the most meticulous care of wiping, blowing, or brushing on the negative, dust can still find its way to your film.

## Helpful Hints to Avoid Retouching of Prints

1. When you make the first print from a negative and bring it out to the viewing light by the front door, along with your critical analysis of the print, look also at the surface of the print to check for dust spots. This way you can remove the dust from the negative **before** making your final print.
2. The anti-static cloth on your supply list for the class works best to repel dust. Wipe both sides of the negative with the cloth before placing the negative into the carrier.
3. Compressed air blows dust off but doesn't help repel dust. **Important: Do Not tilt the can of compressed air while using.** A gas will spray out and can stain your negatives. Keep the can upright and tilt the **film** when using.
4. Handle your negatives with care. Scratches on your film will show up on the print. If the scratch on the negative is showing up black on the print, for all intents and purposes, there's not much you can do. This is an emulsion scratch. If the scratch shows up white, this can be repaired. The scratch is refracting light away from the surface of the paper, leaving a white line. By filling in the scratch with Vaseline, Edwals No-Scratch, or nose grease (no kidding), light is redirected back on to the surface of the print. Make sure these are applied across the scratch and wiped off afterward.

## To Retouch Your Prints You will need:

- Spotone #3
- a brush #000 or finer
- a small cup of water
- a scrap of white paper
- patience

# Procedure

Place a few drops of Spotone #3 on a surface that will not absorb it. (A plastic or metal spoon works well.) Let this dry.

1. Wet the brush in water and brush the edge of the dried Spotone until some is absorbed into the brush.
2. On a scrap piece of white paper, brush out the Spotone from the brush until it shows up light gray. **Important: Always start lighter** than the area you need to match. You will build up to the value you need by applying more Spotone to it.
3. Apply the Spotone to a white spot of a **dry print** by using the point of the brush to fill the spot. **Do not brush this on.** Fill the spot one dab at a time.
4. If you are spotting a line, do not brush the length of the line but dab consecutive points on the line to fill it in.
5. Remember to stay within the borders of the spot, as the surrounding areas can also get darker with Spotone.
6. Spotone will dry quickly so work carefully. Spotone can be washed out of the print by soaking the paper in a final wash for about 10 minutes. Remember that this will wash out **all** the Spotone—mistakes or not.

# Consistent Exposure Problems may require the Use of a Gray Card

There is a direct relationship between the quality of your negative and the quality of your print. Exposure (picture-taking) and development (of film) together create the density and contrast your image will have. Generally, students have very little problems with the film development process as long as they follow the step by step procedures. But film exposure problems can haunt some students all semester. It goes like this:

**Wrong Exposure = Poor Quality Negative = Poor Quality Print = Frustration for Wasting Time, Money, and Energy. Hmmm!**

This **can** mostly be avoided by using a Gray Card to measure exposure. Your instructor will explain why the Gray Card works, but here is how to use it:

1. Place the Gray Card so that the gray surface is facing the camera. Make sure that the same light illuminating your subject is also illuminating the Gray Card.
2. Try to position the Gray Card as close to the subject as possible. For daylight exposures, exposure readings can be made near the camera as long as it receives the same intensity of light as the subject.
3. Make sure the Gray Card is positioned at the same angle as the subject. It is also important that you read only the Gray Card. In other words, if your meter is in the camera, fill the screen with the Gray Card. The Gray Card does **Not** have to be in focus. Be careful not to cast your shadow onto the Gray Card.
5. Meter as you would normally off the Gray Card and leave that setting. When you remove the Gray Card the meter reading will usually change, but **Do Not** adjust for the change. In other words, if your Gray Card reading is f/8 at a 1/125, but then by removing the Gray Card your camera meter indicates you are now over or underexposed, leave the setting at f/8 at a 1/125.
6. If your subject and lighting remain the same, you can bracket your exposure **one stop over** and **one stop under** for negative film. Bracket if you are not sure of exposure and would like to have some variations to choose from. Bracket **only** after your Gray Card exposure.

6. If you are in low light conditions and your meter will not give you a reading, you can use the white side of the Gray Card. Measure light the same way as discussed but add 2 1/3 stops more to your exposure.
7. Remember if lighting conditions change, another Gray Card reading must be taken.

**In conclusion:**

The use of a Gray Card is one means for judging exposure. It's a simple tool to give you more accurate meter readings, but it must be used to work for you. The result will be a qualitative difference in the negatives and prints you produce.

# Toning

## (Advanced Photography Students Only)

Toners are used with black and white prints in order to improve permanence, alter the color, or enhance the quality. The toners used in the photo-lab are Sepia, Selenium, and Blue. **All toners are harmful. Avoid any contact with skin and wash off immediately with cold water if contact occurs.** All the toners are kept above the sink in Loading Room A, and the toning of prints is done **only** in this room. This room is ventilated and has a long sink area for the process. **Use only one toner at a time.**

Trays and tongs used for toning can be found under the sink in loading Room A. Use **only** those trays which are labeled for specific toners. To prepare a print for toning it must be exposed, developed, fixed and washed. If a print is already dry, you need to soak it in water for a few minutes. It is suggested to have an extra untoned print of the same image at hand for a comparison. Log all uses of toners on the log sheet hanging on the wall to the right of the sink in Room A. **All toned prints should be air dried face up on the print drying racks.**

## Sepia Toning

Sepia toner is used to make prints in sepia or brown colors and slightly increase the permanence of the print. Sepia toner is a two-bath process consisting of **Sepia A** solution (bleach) and **Sepia B** solution (toner). The solutions are stored above the sink in brown containers, labeled Sepia A and Sepia B. After using one of the Sepia solutions, pour it back into its container and rinse out the tray before using the other. Trays are also labeled for specific solutions and come in two sizes to accommodate up to 8 x 10 prints, or up to 11 x 14 prints.

1. Pour Sepia A (bleach) into the tray labeled Sepia A. Place the print, image side up, into the solution making sure that all of the print is under the solution.
2. **Agitate continuously** until the dark areas of the print begin to look a little faded. Although a time for this is given in the Sepia package instructions (5-8 minutes), the exhaustion of the solution, the temperature at which it is used, and the toning effect desired, make judging by sight a better criterion. The bleach solution (A) is yellow, so to look at the progress of the bleaching, use a pair of tongs to hold the print out of the solution.
3. When ready, remove the print and place it into another tray filled with water.

4. Rinse with running water for two minutes to remove all the bleach. If you are using the larger trays and have finished bleaching the prints you are toning, use a funnel under the sink and pour the A solution back into the container. Rinse out the Sepia A tray and place the Sepia B tray in the sink and pour the Sepia B (toner) solution into that tray. (Note: Three of the larger trays will not fit in the sink so the Sepia A tray needs to be removed when you have finished bleaching in it.) **Warning: This solution smells like rotten eggs, or the result of eating bad refried beans, so don't glare at the person next to you.**
5. After rinsing the print in running water for two minute, place the print into the Sepia B solution. The print will redevelop within a few seconds. **Agitate continuously** for one minute.
7. Wash fiber prints for 20 minutes and RC prints for 5 minutes. Do Not wash prints with other prints which have **not** been toned. Wash trays, tongs, and funnel and return them under the sink.

## Selenium Toning

Selenium toner will help increase the permanence of the print, as well as produce richer blacks and change print color. The degree of change is based on the dilution of the toner, the length of time the print remains in the solution, and the type of paper used. The color shift will be towards a reddish or purplish-brown. Selenium toner is a one-bath process. For archival toning, 5 minutes in the solution is sufficient. To produce a color change, a minimum of **15** to **20** minutes in the solution is necessary. Warm tone papers require less time and will yield a greater color change.

1. Place a tray labeled "Selenium Toner" in the sink and pour solution from the **Selenium toner** container into it.
2. Place the print, image side up, into the solution and agitate continuously. Have an untoned print of the same image at hand to use to check toning results. It is more difficult to see the degree of changes without a comparison print.
3. For a color shift, check the print after the first **10** minutes, and every 5 minutes thereafter by lifting the print out of the solution with tongs and checking to see its progress.
4. When sufficient, wash the print for 20 minutes in the archival washer.
5. Use the funnel under the sink to pour the Selenium toner back into the container.
6. Wash out trays, tongs, and funnel and return under the sink.

## Blue Toning

Blue toner will change the color of the print to blue very quickly so be prepared. The degree of color change will depend on how long the print is left in the solution. Pour the contents into the tray labeled for Blue toner. **Do not wash blue toned prints in the archival washer. Tray wash only.**

1. Place the print, image side up, into the toning solution. Like the Selenium toner, this too is a one-bath process.
2. Agitate the print **Continuously** until the desired degree of toning is reached.
3. Check the print about every 5-10 seconds with a comparison print to judge effect.
4. If a yellow or green cast is observed in the white areas of the print (this can occur if the print is left in the solution too long), rinse in water for 3 minutes and place the print into a separate tray of salt solution for about 5 minutes with agitation. The salt solution container is located above the sink.
5. Wash the print in a separate tray for about 10 to 15 minutes. **Do Not** let the stream of water fall directly onto the toned image.
6. Pour the Blue toner back into the container. Wash out trays, tongs, and funnel and return them under the sink.

## Selective Toning

### **MUST BE DONE IN THE PRESENCE OF AN INSTRUCTOR**

This is a technique of toning only selective areas of the print. Begin with a dry print.

1. Using rubber cement, apply with a brush onto areas of the print you wish to remain untoned. Overlap areas about 1/16 of an inch and allow to dry for about 10-15 minutes.
2. Push the overlapped rubber cement back to the edge of the areas you want to cover. Use your fingertip or a toothpick to do this.
3. Place the print in water for about 5 minutes and follow steps for toning process.  
**Note: Be careful not to rub off the masking during the toning steps.**
4. When the print is in the rinse for about 3 minutes after toning, gently rub off the rubber cement and discard. **Do not let it wash down the drain.**
5. Complete the final washing cycle.

If the rubber cement is too thick, combine in a separate cup, rubber cement and rubber cement thinner and apply to the print. Allow to dry and apply a second coat. It is sometimes difficult to see where the cement has been applied because it dries clear, so look carefully to cover only the areas you want.

# Ethical and Legal Aspects of Photography

During every semester, in every class, the question of the ethics and legalities of picture-taking is always an issue. It is important for students to know the parameters of these areas for their own knowledge and protection. This writing by Arnold Gassan should help to broadly clarify some of these questions, but remember that there are judgments made due to a variety of conditions which tend to obscure definitive answers.

## Restrictions

By and large, in our society a photographer is free to photograph what he or she wishes, but there are some limits on what can be photographed, and what can be published. Some of these limits are established by law and some by good taste. For example, under the United States Code, it was formerly considered counterfeiting to photograph American currency. Now, in certain circumstances, for certain uses, it is permitted. You can make pictures of almost anybody in a public place, unless that person is protected by the law and the public place is not one in which photographs are prohibited, or where a permit is required. Some seemingly public spaces in fact require you to obtain permission to take photographs; e.g., the New York subway and many museums.

## Privacy

We each own our faces, and therefore retain the right to privacy. An amateur photographer is under fewer constraints than a professional, but either one should have permission from the person photographed or the owner of property to use photographs for sale, profit, and most public exhibitions.

The following have been legally established as violations of privacy:

- publishing a photograph of a person's face or likeness or a photograph of their property for advertising or trade, without that person's permission
- disclosing embarrassing private facts to the public
- using a picture to suggest a falsehood
- trespassing to take a photograph

Permission to reproduce a photograph must be obtained by the photographer, and anyone can release the right to privacy; permission to reproduce photographs is easily ob-

tained by having subjects sign a model release. A sample model release is shown at the end of this section; this can be photocopied and carried for use when needed.

Not all uses of pictures require a release. No release is needed if the event is newsworthy, and in general a release is often not sought when the picture is used in an editorial, rather than advertising or trade, context. But this is a legal gray area, and the trouble of obtaining a release is small when compared to the expenses of protecting yourself in even one legal suit for invasion of privacy.

Many art and commercial photographers do use or exhibit pictures of people and buildings or other images without a release. At the least, they do so unethically, and they do so at their own financial risk. There have been several recent sizable financial settlements made to property owners whose buildings were unwisely used for advertising by photographers who thought they were photographing public property.

### **Intrusion and Trespass**

Intrusion is legally similar to trespass: you need not step foot on another's property to be intrusive. The photographer is prohibited from being intrusive in the act of making a picture. Intrusion can be defined as making your presence evident even when you are not physically on another person's property. Intrusion is more difficult to prove legally than trespass, but it is usually unethical behavior, at the least. Photographers have been arrested for going to unreasonable lengths to produce photographs; for example, by hiring boats and using telephoto lenses to photograph someone on a private beach.

### **Publicity and Libel**

A right of publicity is retained by many people who have created a celebrity value in their name or features. Commercial use of photographs of pictures of such a person is considered subject to license contracts. This is different from being a newsworthy figure, and has been considered as a capital asset by the courts.

Libel is defined as damaging a person's reputation by communicating a false statement. For many years, a newsworthy photograph of a public figure was not suitable for liable unless it was shown to be made with reckless disregard for the truth, or was deliberately false to the reality of the situation. Obviously, a photograph can give a false impression when it is changed by cropping, but powerful distortions of the physical reality of the situation can be created by choice of lens and point of view. Libel law is now being reconsidered in the courts, and definitions of who is subject to libel may change.

## **Copyright**

The U.S. Copyright Law was revised in 1978, and now provides protection for photographs as well as written material. Your unpublished photograph is automatically protected in this country under the copyright act if it is original work. To protect it when it is exhibited or published, the print must bear the copyright symbol ©, your name, and the year, or the phrase "Copyright (year) by (name)," where it can be seen easily.

Under copyright law, you have five exclusive rights, four of which are of concern to photographers:

- the right to reproduce the picture
- the right to prepare derivative works
- the right to distribute the work to the public
- the right to exhibit in public

The definitions of most of these rights are evident, but the second in the list also means that others cannot reuse your photographs in modified form without permission. Photographs can be registered with the copyright office of the Library of Congress (Washington, DC., 20559), but whether registered or not, copyright protection for your original photographs extends for the duration of your life, plus 50 years. When photographs are made for hire, the law is a little different: the copyright protection is for 75 years from publication or 100 years from creation (whichever is shorter). While the copyright registration does not have to be done until the work is published, if publication is considered, copyright should be completed, if only to avoid possible litigation.

### **Who Owns the Picture**

When you make a photograph to order for a client, the client owns the pictures you make, including the negatives and all rights, unless a specific contract defining ownership has been prepared. The photographer may retain the negatives, but cannot make use of them without the customer's permission. In other words, the photographer functions as a factory that manufactures and warehouses photographs.

When the photographer works on speculation or assumes the expenses and produces the pictures for his or her own profit, however, ownership is generally considered specific to the photographer. But even then there may be an implied contract, in

which ownership would revert to the model who was photographed, or to the client who

used the photographs.

Because of this long-standing legal definition of ownership of photographs, it is wise to have a licensing agreement before beginning work. This kind of contract helps assure the photographer that only the usage of the pictures has been purchased, not the original photographic materials themselves.

### **Obscenity and Pornography**

The legal definitions of obscenity and pornography are unclear at present. Our society is very confused about sex and art and photography. Ultimately, it seems that community standards prevail when defining permissible images. Where the photograph is exhibited affects a definition, as much as does the subject matter. An art gallery can show explicit nakedness and sexual relationships that might be cause for arrest if seen elsewhere. The proof is on the photographer, should the question be raised, to show that the work, taken as a whole, has serious artistic value.

### **Summary**

A photographer may photograph freely in most places, but this is limited by rights of privacy, and definitions of trespass and intrusion. Sometimes these are hard to prove legally, and the photographer's own ethical standard prevails. A release is required for the photograph to be legally used for profit. All unpublished original photographs are protected by copyright. Whether a photograph is obscene or not is often decided by community standards, as there is no standard legal definition.

From *Exploring Black & White Photography*  
by Arnold Gasson, WCB Publishers, 1989.

**Model Permission form**  
**Copy and carry in camera case or wallet.**

Model Release  
Date:

Photographer:  
Address:  
Phone:

Description of photographs:

For consideration received, I give \_\_\_\_\_ permission to reproduce the photograph(s) described, and I agree that \_\_\_\_\_, and all licensees and assignees, are entitled to use the photograph(s) described above in any manner or form whatsoever, either wholly or in part, in any medium, and in conjunction with any wording or other photographs or drawings, worldwide. I understand that I do not own the copyright of the photograph(s). I understand that all negatives and positives, together with the prints shall constitute your property, solely and completely.

- I am over the age of majority
- I am the parent/guardian of \_\_\_\_\_ and I consent to these conditions.
- (delete whichever does not apply).

Model's Name (printed):  
Signature:  
Address  
Witness:

## **Mountain View College Student Photo/Imaging Exhibition**

Every Spring Semester at Mountain View College, we have a photo/Imaging exhibition of work produced by students in the program. All students enrolled in credit photography and digital Imaging classes during the Spring Semester are **required** to enter at least one, and up to three, pieces into the show. Students enrolled in these credit classes at Mountain View College during the previous Summer or Fall semester are also eligible to submit work. The photo instructors at MVC will jury the work.

The juror is solely responsible for the photographs selected for the show. The prospectus handed out during the Spring Semester will describe all the details students need to know about the exhibition. This is a wonderful opportunity for students to exhibit their work and have it viewed by many people on campus.

# Recommended Readings

## The Nature of Photography

**Barrow, Thomas**, *Reading Into Photography: Selected Essays, 1959-81*, University of New Mexico Press, 1982: A collection of essays on both contemporary and 19th century photography.

**Barthes, Roland**, *Camera Lucida, Reflections on Photography*, Hill & Wang, 1981: A meditation on photography by the leading French theorist of semiotics. The last half of this book is a fascinating, personal exploration of a single photograph as a "memento mori," a reminder of death.

**Barthes, Roland**, *Mythologies*, Hill & Wang, 1972. If you want to understand why semiotics has become a central concern to current thinking about photography, this is a good, practical introduction: a series of short, often one or two page, essays on everyday phenomena - films, wrestling matches, wooden toys, detergents, steak and chips. Each essay reads deeply into the nature of a specific object, events, or situations in the way that a photograph does.

**Benjamin, Walter**, *Illuminations*, Schocken Books, 1978: A collection of Benjamin's literary essays and which includes "The Work of Art in the Age of Mechanical Reproduction." The ideas in this essay are the core of what Susan Sontag develops in "On Photography," - concern for the authenticity of an art work or of life itself and its replacement by images of itself.

**Berger, John**, *Another Way of Telling*, Pantheon Books, 1982: "With the invention of photography, we acquired a new means of expression more closely associated with memory than any other. But exactly how and why do photographs move us? What can we learn from family albums and the private use of photography? Do appearances constitute a code of life, a sort of 'half-language'? Is it possible to use photographs on behalf of the photographed?" Note especially Berger's essay, "Appearances" - one of the best explications of the limits of positivism in relation to the limits of photography.

**Berger, John**, *Ways of Seeing*, Penguin, 1978: A small book that contains four (4) written essays and three (3) entirely visual essays concerning the politics of art. The first chapter is directly related to the ideas of Walter Benjamin concerning the reproduction of art. Other chapters deal with how women have been portrayed in art through the

ages, the politics of oil painting, and publicity and advertising imagery.

**Berger, John**, *About Looking*, Pantheon Books, 1980: A collection of essays written over ten years which deal with "the search for meaning within and behind what is looked at." The first section contains four essays in photography: "The Suit and the Photographs, Photographs of Agony, Paul Strand, Uses of Photography," and is followed by several short essays on painting, including "Millet and the Peasant, Francis Bacon and Walt Disney, Margritte and the Impossible, Rodin and Sexual Domination." Berger is a leading writer and thinker on visual imagery who approaches art and aesthetics from a Marxist perspective.

**Frampton, Hollis**, *Circles of Confusion: Film-Photography-Video*, Visual Studies Workshop Press, 1983: A collection of essays by a noted theorist of film and photography, articles which originally appeared in the pages of *Afterimage*, *Artforum*, and *October*. Essays include: "Edward Muybridge: Fragments of a Tesseract," "Incisions in History/Segments of Eternity," "Meditations around Paul Strand," and "The Withering Away of the State of the Art."

**Galassi, Peter**, *Before Photography: Painting and the Invention of Photography*, The Museum of Modern Art, 1981: This catalog which accompanied an exhibition at the Modern takes as its thesis the idea that the new kinds of spatial organization, fragmentation and contingency of vision that were evidenced in early photography, were really prefigured in painting prior to the invention of photography. This idea is supported by a selection of paintings and photographs included in this exhibition, as well as in a cogent essay by Galassi.

**Ivins, William M.**, *Prints and Visual Communication*, Cambridge, 1969: Ivins proposes as his thesis that the real significance of photography is that it is the first means of making visual reproductions of things in the world which does not impose on those things a syntax of its own. His thesis is supported by a fascinating examination of the history of "exactly repeatable visual statements" from the woodcut to the photographic halftone.

**Kozloff, Max**, *Photography and Fascination*, Addison House, 1979: Kozloff is one of the subtlest minds writing on photography today. This is a collection of essays written over several years on various aspects of photography, including: "Photography and Fascination," "Nadar and the Republic of Mind," "Moholy-Nagy, the Aerialist," "The Uncanny Portrait-Sander, Arbus, Samaras," and "The Coming of the Age of Color."

**Kubler, George**, *The Shape of Time: Remarks on the History of Things*, Yale University Press, 1962: Note especially: "Preamble, 1. History of Things (The Nature of Actuality: Self-signals and Adherent Signals), 2. The Classing of Things, 3. The propagation of Things, Conclusion."

**Lesy, Michael**, *Time Frames: The Meaning of Family Pictures*, Pantheon Books, 1980: An exploration of the value and significance of family photographs. Lesy interviewed family and friends who had talked with him about their lives while pouring over family photo albums that served as Proustian memory triggers: ". . . once [the snapshot] has been restored to its narrative and iconographic context, the ordinary snapshot becomes the capstone of a pyramid whose base rises from the human heart."

**Lovejoy, Arthur O.**, *The Great Chain of Being: A Study of the History of An Idea*, Harvard University Press, 1960: A classic study of the idea of a rationally conceived universe as it has evolved through history. There are few books more central to the understanding of Enlightenment rationality (which is central to the discovery and evolution of photography). Lovejoy describes the various manifestations and shifts through history of the principles of plenitude and continuity.

**Schwarz, Heinrich**, *Art and Photography: Forerunners and Influences*, Visual Studies Workshop Press, 1983: A collection of essays by one of the first art historians to recognize artistic traditions which preceded photography and found their culmination in it: "Photography is but the final culmination of a long development and must not be studied historically as an isolated phenomenon of the late 19th and 20th centuries. For the spirit of photography is much older than its history."

**Sontag, Susan**, *On Photography*, Delta Publishers, 1979: Probably the most important series of critical essays on photography written in the 1970's. Starting in "Plato's Cave," Sontag's major concern is with how photography in its various forms has been a part of the displacement of human experience by a surrogate or substitute for experience in the photographic image.

**Sontag, Susan**, *A Susan Sontag Reader*, Random House, 1983: If you are interested more of Sontag's criticism, this is a good collection of essays as well as excerpts from her novels. Note especially: "Against Interpretation," "The Pornographic Imagination," "The Aesthetics of Silence," and a poignant essay on Walter Benjamin, "Under the Sign of Saturn."

**Szarkowski, John**, *The Photographer's Eye*, Museum of Modern Art, 1966:

Szarkowski proposes an understanding of photography organized around five basic qualities: The Thing Itself, The Detail, The Frame, Time, and Vantage Point.

**Szarkowski, John**, *Looking at Photographs*, Museum of Modern Art, 1973: A brief, one-page commentary accompanies each of 100 photographs from the collection of the Museum of Modern Art. This book is an education in the multiplicity of ways that a photograph can be read.

## General Histories

**Lyons, Nathan, (ed.)**, *Photographers on Photography*, Prentice-Hall, 1966: The first source of essays by photographers to be published. Almost all of these essays are written by 20th century photographers, ranging from Berenice Abbott ("Photography at the Crossroads") to Aaron Siskind ("The Drama of Objects").

**Freund, Gisele**, *Photography & Society*, David R. Godine Publishers, 1980: A social history of photography written by a well-known French photographer and historian. This is an interesting complement to Newhall's or Rosenblum's history because it is written from a European perspective and therefore gives more attention to European photographers than American photographers. In particular, see Part Two, an in-depth examination of the role of photography in the mass media, photojournalism, etc. A very interesting, pluralistic approach.

**Krauss, Rosalind and Livingston, Jane**, *L'Amour Fou: Photography and Surrealism*, Abbeville Press, 1985: Published in conjunction with a major exhibition at the Corcoran Gallery in Washington, this is the most extensive critical examination of the contribution of surrealist photographers in the early part of the 20th century. The authors believe that the surrealists understood something essential about the nature of photography and the "key concepts of surrealism cannot be understood without first understanding photography as its model."

**Newhall, Beaumont**, *The History of Photography from 1839 to the Present Day*, Museum of Modern Art, 1964 (revised editions published since): The newly revised edition of the first standard history text to be published in this country has added illustrations and updated text. Newhall's history is less comprehensive than Rosenblum's, but more manageable. He is noted for an anecdotal style which makes for a "good read" and reminds us that history is always a matter of telling a good story.

**Petruck, Peninah, (ed.)**, *The Camera Viewed, Writings on Twentieth-Century*

*Photography, Volumes I and II*: Volume I contains writings by photographers and critics prior to World War II and Volume II contains essays by Ansel Adams ("I am a Photographer"), Jerry Uelsmann ("Post-Visualization"), John Szarkowski ("Introduction to the Photographer's Eye"). Especially worthwhile are Duane Michaels "Interview with Professor Gassan and His Students" and Les Levine's political perspectives which he elaborates upon in "Camera Art."

**Rosenblum, Naomi**, *A World History of Photography*, Abbeville Press, 1992 2nd (revised) edition. Rosenblum brings together the technical evolution of photography with social and aesthetic issues. With over 650 pages and over 1000 excellent reproductions of the work of virtually every important photographer. Short profiles of selected photographers are used to reinforce chapters discussed. Clearly, one of the most comprehensive history of photography texts published to date.

# TIME/TEMPERATURE CHARTS FOR FILM DEVELOPMENT

The T-Max Developer Solution used at Mountain View College has been diluted 1 + 4 and is to be used full strength from the containers in the film development area marked T-Max Developer. Do not dilute further!

## ILFORD HP5 PLUS, 400 SPEED FILM TIME/TEMPERATURE CHART

Film	Developer	Dilution	ASA/ISO	35mm	120	Sheet	Temp	Notes
HP5+	TMax Dev	1+4	125	4.5	4.5		20C	<a href="#">[notes]</a>
HP5+	TMax Dev	1+4	400	6.5	6.5	6.5	20C	
HP5+	TMax Dev	1+9	500	15	15	15	24C	
HP5+	TMax Dev	1+4	800	8	8	8	20C	
HP5+	TMax Dev	1+4	1600	9.5	9.5	9.5	20C	
HP5+	TMax Dev	1+4	3200	11.5	11.5	11.5	20C	
HP5+	TMax Dev	1+4	3200	9.5			24C	

### Temperature Conversion Chart

Celsius	=	Fahrenheit
19	=	66
20	=	68
21	=	69
22	=	71.6
23	=	73.4
24	=	75.2
25	=	77.0
26	=	78.8

## TMAX 400 SPEED FILM DEVELOPMENT TIME/TEMPERATURE CHART

Film	Developer	Dilution	ASA/ISO	35mm	120	Sheet	Temp	Notes
(NEW) TMax 400	TMax Dev	1+4	400	5.5	5.5		24C	
TMax 400	TMax Dev	1+4	400-800	7	7	7	20C	
TMax 400	TMax Dev	1+4	400-800	6	6		24C	
TMax 400	TMax Dev	1+7	400	10	10		24C	
TMax 400	TMax Dev	1+9	400		25		18C	
TMax 400	TMax Dev	1+9	400		20		20C	
TMax 400	TMax Dev	1+9	400	15	15		24C	
TMax 400	TMax Dev	1+9	500	14	14	14	24C	
TMax 400	TMax Dev	1+4	800	6	6	6	24C	
TMax 400	TMax Dev	1+4	1600	10	10	10	20C	
TMax 400	TMax Dev	1+4	1600	8	8	8	24C	
TMax 400	TMax Dev	1+4	3200	9.5	9.5	9.5	24C	

## TMAX 100 SPEED FILM DEVELOPMENT TIME/TEMPERATURE CHART

Film	Developer	Dilution	ASA/ISO	35mm	120	Sheet	Temp	Notes
TMax 100	TMax Dev	1+4	100-200	7.5	7.5		20C	
TMax 100	TMax Dev	1+4	100-200	6.5	6.5	6.5	24C	<a href="#">[notes]</a>
TMax 100	TMax Dev	1+4	100-200	6.25	6.25		24C	
TMax 100	TMax Dev	1+7	100	9.5	9.5		24C	
TMax 100	TMax Dev	1+7	100	10	10		24C	<a href="#">[notes]</a>
TMax 100	TMax Dev	1+9	100		17		20C	
TMax 100	TMax Dev	1+9	100	13.5	13.5		24C	
TMax 100	TMax Dev	1+9	160	13	13	13	24C	<a href="#">[notes]</a>
TMax 100	TMax Dev	1+4	400	10	10		24C	
TMax 100	TMax Dev	1+4	400	9	9	9	24C	<a href="#">[notes]</a>
TMax 100	TMax Dev	1+4	800	11.75	11.75		24C	
TMax 100	TMax Dev	1+4	800	10.5	10.5	10.5	24C	<a href="#">[notes]</a>

## TMAX 3200 SPEED FILM TIME/TEMPERATURE CHART

Film	Developer	Dilution	ASA/ISO	35mm	120	Sheet	Temp	Notes
TMax P3200	TMax Dev	1+4	400	6			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	400	6.5			24C	
TMax P3200	TMax Dev	1+4	800	6.5			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	800	7.5			24C	
TMax P3200	TMax Dev	1+7	800	13			24C	
TMax P3200	TMax Dev	1+9	800	19.5			24C	
TMax P3200	TMax Dev	1+9	1280	16			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	1600	7			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	1600	8			24C	
TMax P3200	TMax Dev	1+4	3200	9.5			24C	
TMax P3200	TMax Dev	1+4	3200	9.5			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	6400	11			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	6400	11			24C	
TMax P3200	TMax Dev	1+4	12500	12.5			24C	<a href="#">[notes]</a>

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## KODAK TRI-X/TX FILM DEVELOPMENT TIME/TEMPERATURE CHART

Film	Developer	Dilution	ASA/ISO	35mm	120	Sheet	Temp	Notes
Tri-X 400	TMax Dev	1+4	320		7.25		20C	
Tri-X 400	TMax Dev	1+4	320		5.25		24C	
Tri-X 400	TMax Dev	1+4	400	6			20C	
Tri-X 400	TMax Dev	1+4	400	4.75			24C	
Tri-X 400	TMax Dev	1+4	400-800	6	6		20C	<a href="#">[29]</a>
Tri-X 400	TMax Dev	1+9	640	11	11		24C	<a href="#">[29]</a>
Tri-X 400	TMax Dev	1+4	1600	8.75			20C	
Tri-X 400	TMax Dev	1+4	1600	10	8.5		20C	<a href="#">[29]</a>
Tri-X 400	TMax Dev	1+4	3200	12	11		24C	<a href="#">[29]</a>

### Temperature Conversion Chart

Celsius	=	Fahrenheit
19	=	66
20	=	68
21	=	69
22	=	71.6
23	=	73.4
24	=	75.2
25	=	77.0
26	=	78.8

## FUJI NEOPAN FILM DEVELOPMENT TIME/TEMPERATURE CHART

Film	Developer	Dilution	ASA/ISO	35mm	120	Sheet	Temp	Notes
Neopan 400	TMax Dev	1+4	400	6	6		20C	
Neopan 400	TMax Dev	1+9	640		17		20C	
Neopan 400	TMax Dev	1+9	640	11	11		24C	
Neopan 400	TMax Dev	1+4	800	7.25	7.25		20C	
Neopan 400	TMax Dev	1+9	800		19		20C	<a href="#">[notes]</a>
Neopan 400	TMax Dev	1+4	1600	10	10		20C	

## MULTIPLE FILM DEVELOPMENT TIME/TEMPERATURE CHART

Film	Developer	Dilution	ASA/ISO	35mm	120	Sheet	Temp	Notes
(NEW) TMax 400	TMax Dev	1+4	400	5.5	5.5		24C	
Delta 100 Pro	TMax Dev	1+4	50	6	6	6	20C	
Delta 100 Pro	TMax Dev	1+9	80	12	12	12	24C	
Delta 100 Pro	TMax Dev	1+4	100	7	7	7	20C	<a href="#">[notes]</a>
Delta 100 Pro	TMax Dev	1+4	200	8	8	8	20C	
Delta 3200 Pro	TMax Dev	1+4	400	5.5	5.5		20C	<a href="#">[notes]</a>
Delta 3200 Pro	TMax Dev	1+4	800	6.5	6.5		20C	
Delta 3200 Pro	TMax Dev	1+4	1600	7.5	7.5		20C	

Delta 3200 Pro	TMax Dev	1+4	3200	8.5	8.5		20C	
Delta 3200 Pro	TMax Dev	1+4	6400	11	11		20C	
Delta 3200 Pro	TMax Dev	1+4	12500	14	14		20C	
Delta 400 Pro	TMax Dev	1+4	200	5	5		20C	
Delta 400 Pro	TMax Dev	1+4	200	4	4		24C	
Delta 400 Pro	TMax Dev	1+4	400	6.5	6.5		20C	
Delta 400 Pro	TMax Dev	1+4	500	7	7		20C	
Delta 400 Pro	TMax Dev	1+4	500	5.5	5.5		24C	
Delta 400 Pro	TMax Dev	1+4	800	8.5	8.5		20C	
Delta 400 Pro	TMax Dev	1+4	800	7	7		24C	
Delta 400 Pro	TMax Dev	1+4	1600	10.5	10.5		20C	
Delta 400 Pro	TMax Dev	1+4	1600	8.5	8.5		24C	
Delta 400 Pro	TMax Dev	1+4	3200	13.5	13.5		20C	
Delta 400 Pro	TMax Dev	1+4	3200	11	11		24C	
Fortepan 100	TMax Dev	1+4	100	5.5	5.5		20C	
Fortepan 200	TMax Dev	1+4	200	6	6	6	20C	
Fortepan 400	TMax Dev	1+4	400	8.5	8.5	8.5	20C	
Fortepan Portrait	TMax Dev	1+4	100		5.5		20C	
FP4+	TMax Dev	1+4	100	4.5	4.5		20C	
FP4+	TMax Dev	1+4	125	6.5	6.5		20C	
FP4+	TMax Dev	1+4	125	4.5-8	4.5-8	4.5-8	20C	
FP4+	TMax Dev	1+9	160	11			24C	
FP4+	TMax Dev	1+4	200	9	9	9	20C	
FP4+	TMax Dev	1+4	320	12			20C	
HIE Infrared	TMax Dev	1+4	n/a	4-8		4-8	24C	
HIE Infrared	TMax Dev	1+4	50	7			20C	
HIE Infrared	TMax Dev	1+4	2000	5			24C	<a href="#">[notes]</a>
HP5+	TMax Dev	1+4	125	4.5	4.5		20C	
HP5+	TMax Dev	1+4	400	6.5	6.5	6.5	20C	
HP5+	TMax Dev	1+9	500	15	15	15	24C	
HP5+	TMax Dev	1+4	800	8	8	8	20C	
HP5+	TMax Dev	1+4	1600	9.5	9.5	9.5	20C	
HP5+	TMax Dev	1+4	3200	11.5	11.5	11.5	20C	
HP5+	TMax Dev	1+4	3200	9.5			24C	

Iford Pan 100	TMax Dev	1+4	100	8			20C	
Iford Pan 100	TMax Dev	1+4	200	9			20C	<a href="#">[notes]</a>
Iford Pan 400	TMax Dev	1+4	200	5			20C	<a href="#">[notes]</a>
Iford Pan 400	TMax Dev	1+4	400	6			20C	
Iford Pan 400	TMax Dev	1+4	800	8			20C	
Iford Pan 400	TMax Dev	1+4	1600	9			20C	
Neopan 100 Acros	TMax Dev	1+4	100	5.5	5.5		20C	
Neopan 100 Acros	TMax Dev	1+9	100		10.5		20C	
Neopan 100 Acros	TMax Dev	1+4	200	8	8		20C	
Neopan 100ss	TMax Dev	1+4	200	5.5	5.5		20C	
Neopan 100ss	TMax Dev	1+4	400	8.5	8.5		20C	
Neopan 1600	TMax Dev	1+9	640	6			24C	
Neopan 1600	TMax Dev	1+4	1600	4.5			20C	
Neopan 1600	TMax Dev	1+4	3200	10			20C	
Neopan 400	TMax Dev	1+4	400	6	6		20C	
Neopan 400	TMax Dev	1+9	640		17		20C	
Neopan 400	TMax Dev	1+9	640	11	11		24C	
Neopan 400	TMax Dev	1+4	800	7.25	7.25		20C	
Neopan 400	TMax Dev	1+9	800		19		20C	

Neopan 400	TMax Dev	1+4	1600	10	10		20C	
Neopan F	TMax Dev	1+4	50	4.5			20C	
Neopan F	TMax Dev	1+4	100	7			20C	
Neopan Presto 100	TMax Dev	1+4	100	6			20C	
Neopan Presto 100	TMax Dev	1+4	200	9			20C	
Neopan Presto 100	TMax Dev	1+4	400	12			20C	
Oripan 400	TMax Dev	1+4	400	6			20C	
Oripan 400	TMax Dev	1+4	800	7.5			20C	
Pan F+	TMax Dev	1+4	50	4	4		20C	<a href="#">[notes]</a>
Pan F+	TMax Dev	1+9	80	6	6		24C	
Pan F+	TMax Dev	1+4	125	7			20C	
Plus-X	TMax Dev	1+4	125-250	5.75	5.75		20C	
Plus-X	TMax Dev	1+4	125-250	4.25	4.25		24C	
Plus-X	TMax Dev	1+4	500	6.25	6.25		24C	

Technical Pan	TMax Dev	1+4	50	4-7	4-7	4-7	24C	
Technical Pan	TMax Dev	1+4	200	6.5			24C	
TMax 100	TMax Dev	1+4	100-200	7.5	7.5		20C	
TMax 100	TMax Dev	1+4	100-200	6.25	6.25		24C	<a href="#">[notes]</a>
TMax 100	TMax Dev	1+4	100-200	6.5	6.5	6.5	24C	
TMax 100	TMax Dev	1+7	100	9.5	9.5		24C	
TMax 100	TMax Dev	1+7	100	10	10		24C	
TMax 100	TMax Dev	1+9	100		17		20C	
TMax 100	TMax Dev	1+9	100	13.5	13.5		24C	
TMax 100	TMax Dev	1+9	160	13	13	13	24C	<a href="#">[notes]</a>
TMax 100	TMax Dev	1+4	400	9	9	9	24C	
TMax 100	TMax Dev	1+4	400	10	10		24C	
TMax 100	TMax Dev	1+4	800	10.5	10.5	10.5	24C	
TMax 100	TMax Dev	1+4	800	11.75	11.75		24C	
TMax 400	TMax Dev	1+4	400-800	7	7	7	20C	
TMax 400	TMax Dev	1+4	400-800	6	6		24C	<a href="#">[notes]</a>
TMax 400	TMax Dev	1+7	400	10	10		24C	<a href="#">[notes]</a>
TMax 400	TMax Dev	1+9	400		25		18C	
TMax 400	TMax Dev	1+9	400		20		20C	
TMax 400	TMax Dev	1+9	400	15	15		24C	<a href="#">[notes]</a>
TMax 400	TMax Dev	1+9	500	14	14	14	24C	
TMax 400	TMax Dev	1+4	800	6	6	6	24C	<a href="#">[notes]</a>
TMax 400	TMax Dev	1+4	1600	10	10	10	20C	
TMax 400	TMax Dev	1+4	1600	8	8	8	24C	
TMax 400	TMax Dev	1+4	3200	9.5	9.5	9.5	24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	400	6.5			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	400	6			24C	
TMax P3200	TMax Dev	1+4	800	6.5			24C	<a href="#">[notes]</a>
TMax P3200	TMax Dev	1+4	800	7.5			24C	
TMax P3200	TMax Dev	1+7	800	13			24C	
TMax P3200	TMax Dev	1+9	800	19.5			24C	
TMax P3200	TMax Dev	1+9	1280	16			24C	
TMax P3200	TMax Dev	1+4	1600	8			24C	
TMax P3200	TMax Dev	1+4	1600	7			24C	

TMax P3200	TMax Dev	1+4	3200	9.5			24C	
TMax P3200	TMax Dev	1+4	3200	9.5			24C	
TMax P3200	TMax Dev	1+4	6400	11			24C	
TMax P3200	TMax Dev	1+4	6400	11			24C	
TMax P3200	TMax Dev	1+4	12500	12.5			24C	
TMax P3200	TMax Dev	1+4	12500	12			24C	
TMax P3200	TMax Dev	1+4	25000	14			24C	
TMax P3200	TMax Dev	1+4	25000	13.5			24C	<a href="#">[notes]</a>
Tri-X 320	TMax Dev	1+4	320		7.25		20C	<a href="#">[notes]</a>
Tri-X 320	TMax Dev	1+4	320		8	8	20C	
Tri-X 320	TMax Dev	1+4	320		5.25		24C	
Tri-X 400	TMax Dev	1+4	320		7.25		20C	
Tri-X 400	TMax Dev	1+4	320		5.25		24C	<a href="#">[notes]</a>
Tri-X 400	TMax Dev	1+4	400	6			20C	
Tri-X 400	TMax Dev	1+4	400-800	6	6		20C	<a href="#">[notes]</a>
Tri-X 400	TMax Dev	1+4	400	4.75			24C	
Tri-X 400	TMax Dev	1+9	640	11	11		24C	<a href="#">[notes]</a>
Tri-X 400	TMax Dev	1+4	1600	8.75			20C	
Tri-X 400	TMax Dev	1+4	1600	10	8.5		20C	<a href="#">[notes]</a>
Tri-X 400	TMax Dev	1+4	3200	12	11		24C	<a href="#">[notes]</a>

# ASSOCIATE IN ARTS DEGREE EMPHASIS IN PHOTOGRAPHY/IMAGING

IN ORDER TO BE ELIGIBLE TO RECEIVE AN ASSOCIATE IN ARTS DEGREE WITH AN EMPHASIS IN PHOTOGRAPHY/IMAGING, A STUDENT MUST:

1. Complete the total of 66 credit hours for this emphasis\*
2. Receive GPA of at least 2.00 ('D')
3. Meet all TASP requirements

Students who plan to transfer must work closely with an advisor

## CREDIT HOURS TO BE COMPLETED:

### COMMUNICATION

CREDITS TO BE COMPLETED = 9

Select each of the following:

English 1301

English 1302

\*Speech 1311 OR any Foreign Language

Course 1311 or higher

Students must select Speech 1311 if seeking an AA or AS degree

### MATHEMATICS

CREDITS TO BE COMPLETED = 3

Select one course:

Math 1314

Math 1324

Math 1332

Math 1333

Math 1342

Math 1414

Math 2412 or higher level

### LAB SCIENCE

CREDITS TO BE COMPLETED = 8

Select two courses:

Biology 1406, 1407, 1408, 1409

Chemistry 1405, 1407, 1411, 1412

Geology 1401, 1403, 1404, 1445

Physics 1401, 1402, 1405, 1407, 1411, 1412, 1415,  
1417, 1425, 1426

### SOCIAL/BEHAVIORAL SCIENCES

CREDITS TO BE COMPLETED = 15

History 1301, 1302

Government 2301, 2302

Select one course from the following:

Anthropology 2346, 2351

**Economics 1301, 2301, 2302, 2311**

**Psychology 2301, 2314, 2316**

**Sociology 1301, 1306, 2319**

**HUMANITIES/VISUAL AND  
PERFORMING ARTS**

**CREDITS TO BE COMPLETED = 9**

**Select one course from each of the three groupings:**

- 1. Arts 1301, 1303, 1304**  
**Dance 2303**  
**Drama 1310, 2366**  
**Humanities 1301**  
**Music 1306, 1308, 1309**
  
- 2. English 2321, 2322, 2323, 2326, 2327, 2328,**  
**2331, 2332, 2333**
  
- 3. Cultural Studies 2370**  
**History 2321, 2322, 2380, 2381**  
**Philosophy 1301, 2306, 2307, 2316, 2317**  
**Religion 1304**

**INSTITUTIONAL OPTIONS**

**CREDITS TO BE COMPLETED = 4**

**Physical Education 1164 AND Computer Science 1300 or higher**

**PHOTOGRAPHY/IMAGING**

**CREDITS TO BE COMPLETED = 18**

**Intro to Digital Photography PHOT 1316**  
**Photography I PHOT 1318 or ARTS 2356**  
**Photography II PHOT 1319 or ARTS 2357**  
**Introduction to Photoshop PHOT 2325**  
**Special Photographic Topics ARTS 2389**

**STRONGLY RECOMMENDED**

**Advanced Photoshop PHOT 2326**  
**Academic Cooperative COMM 2389**

- 61 Credit hours are required for the Associate in Arts Degree without the Photography/ Imaging emphasis.**
  
- Total Credits 63**

**PROGRAM DESCRIPTION**

**The Associates n Arts Degree provides general academic courses and electives that enable students who intend to major in Photography/imaging to transfer to four-year institutions and ear a bachelors degree, or for students interested in completing an Associate in Arts degree. Students who plan to transfer to a four-year institution must consult with a DCCCD advisor in the Counseling Center to ensure that selected courses will both transfer and apply toward the intended major.**

**The Photography/Imaging Degree Plan is designed for students who are interested in beginning an in-depth study of photography and digital imaging, and prepare students for a career in professional**

**photographic/imaging either in the fine art or commercial field. Technical proficiency and creative expression are emphasized to produce a 'whole' and meaningful experience.**

# Notes