

The background of the cover is a vibrant, abstract digital painting. It features a variety of colors including bright yellow, deep blue, lush green, and fiery red. The brushstrokes are thick and expressive, creating a sense of movement and texture. Some areas show circular, swirling patterns, while others are more angular and blocky. The overall composition is dynamic and visually rich.

FOUNDATIONS of **DIGITAL ART and DESIGN**

with ADOBE® CREATIVE CLOUD

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Riders
VOICES THAT MATTER™

*For Parker and Martin, born 2/22/13 when this manuscript was
one chapter shy of completion*

**FOUNDATIONS OF DIGITAL ART AND DESIGN WITH ADOBE® CREATIVE CLOUD
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This book includes a lot of images of works of art that could easily result in a great amount of permissions expenses. Nearly all of the images in the text were donated. (I paid a grand total of \$50 in image permissions for the entire book.) Dear artist and designer contributors, I am forever grateful for your willingness to have your works printed without the fees that often accompany image permissions.

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INTRODUCTION

WHAT ARE THE FOUNDATIONS OF DIGITAL ART AND DESIGN?

I teach in a university communications department. Most of my students have little time in their schedules for classes that would heighten their understanding of visual communication: foundations of two-dimensional design, typography, drawing, and so on. Instead, they enroll in a survey course, Visual Communication, which seats more than 200. Some of them sign up for an elective “skills” course to learn how to use the Adobe Creative Suite (or at least part of it). Obviously, mastery doesn’t happen in a single course. At best, the skills course creates awareness of the concepts and techniques that someone entering the creative professional industries should master. (Of course, I advise students to follow up with related coursework to deepen their knowledge of the craft.)

First developed to serve these students, this book is now used by readers and educators in two-year and four-year fine arts and applied arts programs, college-level communications and media departments, and U.S. high schools. With all of this in mind, the aim of this book is to offer the most information at the confluence of media design (principles, histories, and theories) and software (namely, Adobe) for a wide variety of readers, educators, and practitioners. My goal is to be thorough enough for university students and clear enough for high school students.

The majority of my students are interested in practicing the exercises and mastering the software, because they’re anxious to jump in and create. However, the majority of educators I know are interested in teaching art and design, because they’re passionate not about software, but about media art or graphic design, digital video, and so on.

My approach to mediating this clash of interests is to write (or lecture) about and show as many ideas and examples of art and design history and principles as I can *while* demonstrating the use of the tools. For example, instead of showing students how to remove red-eye from a photograph (there are loads of videos on YouTube for such a specific endeavor), I demonstrate making a conscious design choice in regard to scale, proximity, the rule of thirds, or other principles while using the same tools. I’ve tried to keep the exercises short, while also showing the fundamental tools in many of the Adobe programs. Most of the tools have changed very little since the first time I used Photoshop in 1992 (with the major exception of the development of layers in 1994, but I digress).

Since my students don't typically take a course in two-dimensional design, I start in Section 1, *Bits, Pixels, Vectors, and Design*, with material that's been presented by the authors and artists on whose shoulders I'm crouching: Donis A. Dondis (*A Primer of Visual Literacy*), Johannes Itten (*Design and Form: The Basic Course at the Bauhaus and Later*), David A. Lauer and Stephen Pentak (*Design Basics*), Wucius Wong (*Principles of Form and Design*), and others. It is this understanding of the language of design that I consider foundational. I also include examples of each principle or basic element drawn from contemporary works of digital art. While this book may be assigned in a graphic design program, it's often read within the broader context of digital art. Though I'm an education advisor on the AIGA Orange County board, my personal identity as a digital artist is also part of this equation.

Two-dimensional design is followed by Section 2, *Digital Photography*. In the classroom, I find it easier to present basic vector graphics before introducing the pixel-loaded arena of digital imaging—Illustrator is often a much more forgiving application than Photoshop due to the insignificance at such a basic level of file resolution. In this text, photography is primarily considered to be another vehicle through which the basic elements of design can be understood.

Since photo manipulation is nearly as old as the medium itself, the natural follow-up to photography is Section 3, *Digital Manipulation and ~~Free~~ Fair Use*—where better to talk about contrast through juxtaposition?

Section 4, *Typography*, teaches students to honor and manipulate type. This is essential, as most visual communication comprises type and image, and occasionally time. I studied photography in my undergraduate days at the Art Institute of Boston; typography is an art that I learned during my professional life as a web designer in the 1990s and since then as an instructor. It helped that I lived with one of the best typographic educators in Southern California in the early 2000s. I've talked with many educators who are strong in one area—photography, typography, web design, or something else—but feel a deficit in another. As such I provide resources for additional materials throughout the book, both for students and educators who might be using this text in a classroom.

The Coda, at the end of the book, explains the important concept of revision. A student may assume that she has an experiential understanding of design principles after simply following the steps in a software application. Students and readers must remember that reading a book on learning to play the guitar is not the same as mastering the instrument. Practice, and of course revision, is the best way to learn the craft and become more efficient. I've included revision stories from artists and design professionals alike.

In addition, you'll find two bonus sections online or in the electronic version of this book:

Section 5, *The Web*, touches just the tip of the interactive iceberg. I rarely reach this section of the text in my own foundations class, but I've received feedback from educators who used my prior coauthored publication (*Digital Foundations*) that the chapters are helpful in a variety of courses. I dropped the Flash chapters because the advent of HTML5 and the lack of support for the Flash player on touchpad devices has cornered the program into more of a niche than fits the foundation-level aim of this text.

Automation is key to working efficiently, so one chapter in Section 6, *Effective Work Habits*, available online is dedicated to it. The other chapter addresses the question, "How do you suggest I make a portfolio I can send someone?" There's no one perfect answer, as each student has different talents and different needs. But learning pagination in InDesign can help students who want to create their own books—a handy thing for soon-to-be graduates or those applying for internships. Lastly, I would like to offer an update of Dondis's scale that registers the differences (or similarities) among specific artistic media on a continuum of "fine" and "applied" art in FIGURE I.1. To demonstrate that the Bauhaus "would group any and all of the fine and applied arts on one central point in the continuum" [1], Dondis placed the media of the time grouped around a central point on the horizontal axis (Figure I.1). All forms of visual

REFERENCE [1] Donis A. Dondis, *Primer of Visual Literacy* (Cambridge, MA: MIT Press, 1973). pg. 4.

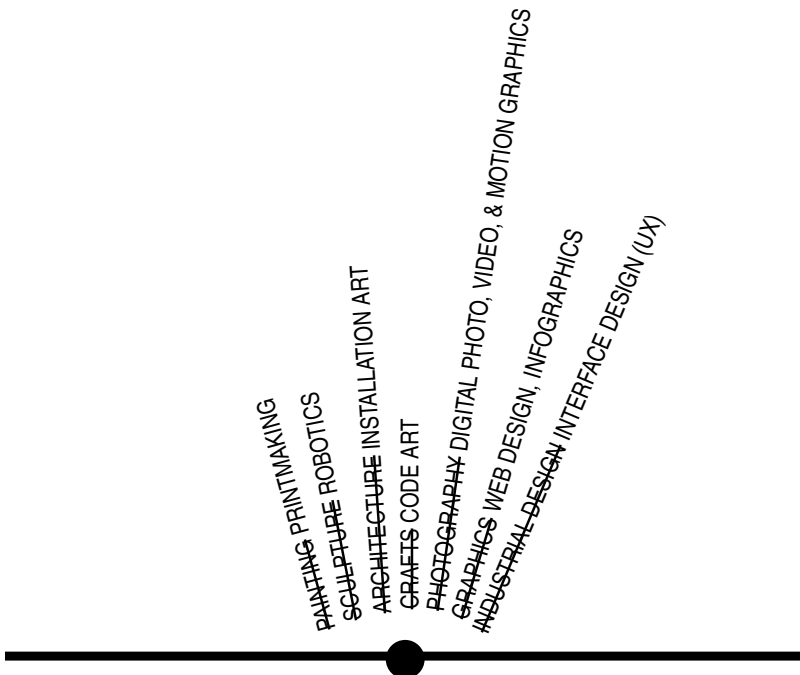


FIGURE I.1 Donis A. Dondis developed the original illustration in reference to the perceived intellectual divide between the two purposes, outcomes, or beliefs about art making. (The image is essentially the same, where the labels would have been the text that appears here with a strike through it.)

message-making are influenced and analyzed by an understanding of the basic elements of design, on the screen, in print, as a hologram, or however else they may come to us on future platforms. Whether you intend to be a web designer, a social media entrepreneur, a digital installation artist, or a digitally inspired printmaker, the design foundations offered in this book—coupled with the exercises in each of the software applications—will help you achieve your goals.

Since all students or readers will have different hardware, software, and needs, you'll learn to use this book in the most fitting way for your setup in the following exercises.



OPERATING SYSTEMS

When the Mac was released in 1984, it included a graphical user interface and a mouse, two visual user-oriented components that were missing from other personal computers (FIGURE 1.2). Artists and designers developed a strong loyalty to Apple over time as their needs and concerns were often met first on the Apple platform. For a while, there was no question about which platform was best suited to making art on the computer: Mac. Universities now have Mac labs dedicated to art and design programs. And in these industries, Mac is still the standard platform. However, multimedia and web designers often work on Windows machines because they need to see what their work will look like in the environment common to most of their users.

Today, it really doesn't matter if you use a Mac or a PC. Your files will transfer easily from one machine to the other. (Be sure to include the file extensions in the name of your file—something you'll learn more about in Chapter 1, *The Dot, the Path, and the Pixel*). If you're creating multimedia art or designs, you'll want to view the work on both platforms. However, this should not dictate where you conceive and develop the project.

Since most schools, colleges, and universities offer digital art and design classes on the Mac platform, I've written this book for the Mac operating system. The screenshots were made on my MacBook Pro. If you're using a PC, you'll simply need to translate the following keys as you follow the exercises in this book:

- On a PC, the Control key is used where the Command key (⌘) is indicated for Mac users.
- On a PC, the Alt key is used where the Option key is indicated for Mac users.

That's it. The rest is more or less the same.



FIGURE 1.2 The first Mac computer sold commercially in 1984. It included a mouse and a graphical user interface instead of the ever-intimidating command line.



FIGURE 1.3 A screenshot of the companion website, www.digitalart-design.com. You can download any necessary work files from this site before beginning exercises in most of the chapters.

EXERCISE 2 DOWNLOADING WORK FILES

Some of the exercises in this book will require you to download a work file or a set of files before you begin. All of the files are on the companion website I've created for readers of *Foundations of Digital Art and Design*, www.digitalart-design.com (FIGURE 1.3). I've also posted a link to the work files on my personal website (www.missconceptions.net), and there's a Facebook page for *Foundations of Digital Art and Design* where I'll post updates and answer reader questions (www.facebook.com/FoundationsOfDigitalArtAndDesign).

EXERCISE 3 CREATIVE COMMONS

Many of the images in this book were donated by artists and designers. Some were available for me to use in a commercial publication because the copyright had expired, or because the work was part of a government archive, which usually puts it into the public domain, or because the artist(s) who created the work used a Creative Commons (CC) license in lieu of a traditional copyright. To those who donated or published with CC licenses: thank you!

You'll learn more about the copyleft movement and creative licensing techniques in the introduction to Section 3, *Digital Manipulation and Free Fair Use*.



FIGURE S1-01 Leo Villareal often incorporates LEDs, custom circuitry, and a microcontroller in his light installations (<http://youtu.be/Jxjhki-s3V8>).



CHAPTER 4

CREATING AND ORGANIZING DIGITAL PHOTOGRAPHS

THE EXERCISES IN this chapter will explain the camera mechanics involved in creating a photograph and demonstrate how to organize, rename, and set up a digital “contact sheet” via a PDF of your images. You’ll explore your camera and use your files or those from the companion website to learn some of the best file management tools available in Adobe Bridge.

Light is essential for creating a photographic image. How the light is measured and captured in the camera will affect the resulting image. In this chapter, you’ll learn to control how much light is rendered in your “light drawing” or photograph. In the following chapters, you’ll learn to compose within the frame of the viewfinder and to adjust the tonal range during the post-production process. Since outdoor light is a direct product of the sun and moon, the amount of natural light in a photograph also relates to the time of day. Conceptually, time, considered as both duration and as the shift in lighting as day passes to night is a rich theme for photographers and artists to explore and interpret. The new media artist duo Jon Thomson and Alison Craighead

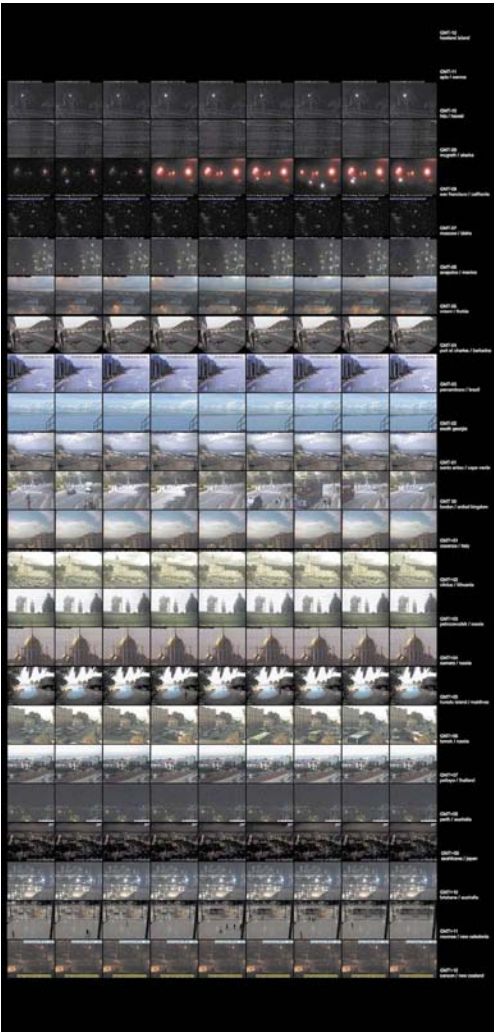


FIGURE 4.1 Thomson & Craighead, *Horizon*, 2009. Screen view, Dundee Contemporary Arts. Image provided courtesy of the artists.

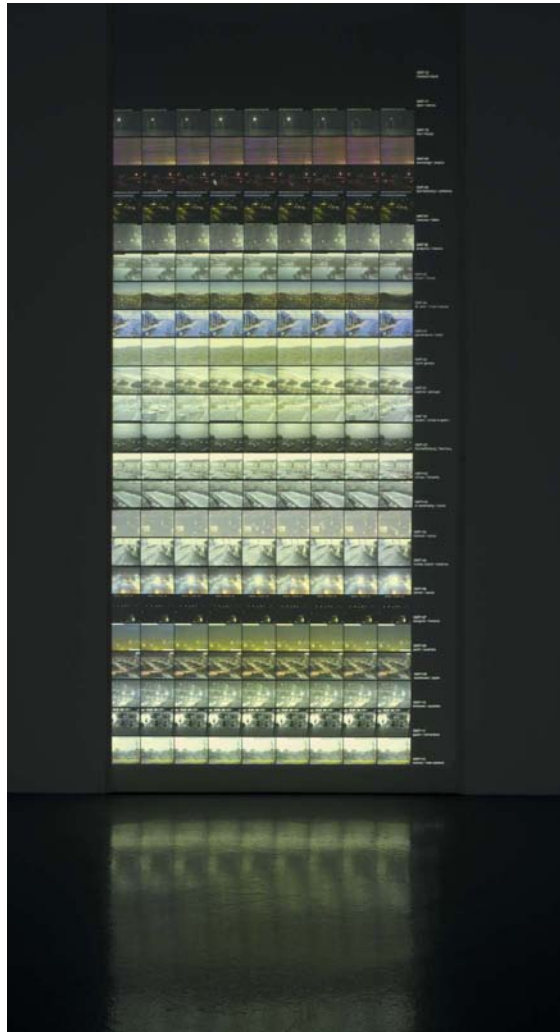


FIGURE 4.2 Thomson & Craighead, *Horizon*, 2009. Installation view, Dundee Contemporary Arts. Image provided courtesy of the artists.

(known simply as Thomson and Craighead) created an installation titled *Horizon* that displays a representation of the time at one specific location—the horizon (FIGURES 4.1 AND 4.2). On their website, they write:

REFERENCE [1]

See www.thomson-craighead.net/docs/horizon.html

Horizon is a narrative clock made out of images accessed in real time from webcams found in every time zone around the world. The result is a constantly updating array of images that read like a series of movie storyboards, but also as an idiosyncratic global electronic sundial [1].

Your camera may offer you anything from no control over the way light is registered on the digital sensor (which is ultimately responsible for the resulting image file) to complete control in manual mode. Some of the information in the Camera Mechanics exercise won't apply to your situation if you're using a point-and-shoot camera or a mobile device. However, most of my students have access to consumer- or prosumer-level (not quite professional but a step above the consumer level) digital cameras and many have digital single lens reflex (DSLR) cameras. This range offers the photographer some degree of or even full control.

Photography began as a technical and scientific pursuit of creative and documentary expression. The pervasive nature of digital cameras makes it difficult for some people to conceive of the craft as specialized. For many, the camera is just another gadget. Harrod Blank's *Camera Van* (FIGURE 4.3) includes one of every Polaroid camera ever made along its front grill, and that's just the beginning. The word "SMILE" is printed across the top of the van, each letter formed of Kodak Instamatic cameras (FIGURE 4.4). On the driver's side, a camera-mural of the Kodak Instamatic is made of mounted Instamatics. Do they work? Yes, they do! Screens display photos taken with the van (FIGURE 4.5). Blank showcases image galleries for each set of audiences he's driven past in *Camera Van* (FIGURE 4.6). After learning of the many ways to control the production of a single photographic image, even skeptics should agree that the craft is as rich and complicated today as it was in the days of glass negatives.



FIGURE 4.3 Harrod Blank, *Camera Van*, 1995 and ongoing. www.cameravan.com. Photo by Hunter Mann.



FIGURE 4.4 Harrod Blank, *Camera Van*. www.cameravan.com.



FIGURE 4.5 Harrod Blank, *Camera Van*. www.cameravan.com.



FIGURE 4.6 Harrod Blank, *Soy Bean Farmer, MN*. Photograph created by the Camera Van.

MEASURING LIGHT

PHOTOGRAPHIC VALUES

The zone system for understanding value shifts across the image is more thoroughly covered in Chapter 5, *Resolution and Value*.

The amount of light required to make a photograph is measured with a meter. In the predigital era, some SLR cameras had built-in light meters, while large-format cameras did not. External light meters are still used today in photography studios. Digital cameras include a built-in light meter. The light meter registers the amount of light that's either in the center of the frame, averaged throughout the frame, or—for some cameras with the “spot” option—at a specific location within the frame. Understanding how to adjust your camera settings to comply with the light meter specifications requires you to understand the role of the f-stop and shutter speed camera controls. The light meter reading will show you how much light will be required to make a legible exposure for a balanced combination of f-stop and shutter speed settings discussed in Exercise 1. Generally, the purpose of your exposure will be to present photographic details at the extreme areas of contrast in the image. That means you'll want to capture details in the highlights and details in the shadows.

If you're shooting in automatic mode or can't control these settings, you'll simply point and shoot, and then hope for the best. Be careful when composing images in high-contrast lighting situations. Avoid shooting at or near noon, when the sun and shadows are strongest. And avoid low-light situations.

If you're working in manual mode, once you know how much light you need, balance the f-stop (which governs the diameter of the aperture) and shutter speed (which controls the duration of the shutter release) settings. Your choices about these two settings will depend on the depth of field (in the case of aperture) and movement (shutter speed) you want to include.

Some cameras let you create photographs in “aperture priority” or “shutter speed priority” modes. This means you can choose which of those two features you want to control. The camera will set the opposing lighting variable according to the choice you make.

RULE OF THIRDS

In addition to your camera setting choices, you'll be making decisions while creating a composition. As you can imagine, there are a lot of technical and aesthetic choices to make while creating powerful photographic imagery. In Exercise 5, you'll learn to see the compositional space using crop guides that make visible the “rule of thirds.” This is a common way to understand the photographic frame, which is most often a two-dimensional environment with a 3:2 ratio. (4:3 and 16:9 are also common ratios among a variety of digital



FIGURE 4.7 An image composed adhering to the rule of thirds.

media.) The premise of the rule of thirds is to evenly divide the frame by two horizontal and two vertical lines before composing the subject matter along the intersections of those guides (FIGURE 4.7).

One desired result of the rule of thirds is the elimination of the number one newbie mistake: centering the subject in the middle of the frame. You'll also start to see and weigh the visual balance of your subject matter by thirds, bringing more tension and energy to the overall composition. The more you're aware of the compositional space, the more likely you'll be to create a composition that leads the eye to your desired focal point.

ADOBE BRIDGE

Admittedly, when Bridge was first released for Adobe Creative Suite 2, it was, how shall I put this, not terribly user-friendly. I didn't use it. My students didn't use it. No one I knew used it. We might have tried it a few times, but it just didn't seem worth the effort. After several revisions, Bridge has become an organizational tool that is absolutely worth learning. Bridge was primarily developed to allow you to organize and view file information relating to all the various types of files you generate using Creative Cloud.

GET CLOSER AND WATCH THE EDGES

Two additional pieces of advice that I give to new students are not specified by the rule of thirds:

- Get closer. By that I mean physically move your body and your camera closer to your subject.
- Watch the edges of the frame. The viewer shouldn't be left in no-man's-land at the edges of the frame. Be conscious about using the full frame to tell your visual story.

RATIOS A ratio is a relationship between pairs of numbers. For instance, if you're cooking rice at a 1:2 ratio with water, you'll add one part of rice to the pot for every two parts of water. Instead of instructing someone to cook one cup of rice with two cups of water, it's more scalable to advise the ratio.

WHAT YOU'LL NEED

Download the following source materials to complete the exercises in this chapter:

- ✓ The **chapter4-start** folder from the Chapter 4 downloads area on the book's companion website includes a **rule-of-thirds** folder and a **batch-rename** folder for those exercises.

You'll begin the exercises in this chapter by exploring your digital camera.

WHAT YOU'LL MAKE

In the exercises for this chapter, you'll organize your digital photographs in Bridge and create a PDF that showcases a series of images (FIGURE 4.8). This serves the same purpose as and looks similar to the contact sheets that photographers have used for decades. Your PDF will contain images, and it will display your file naming system.

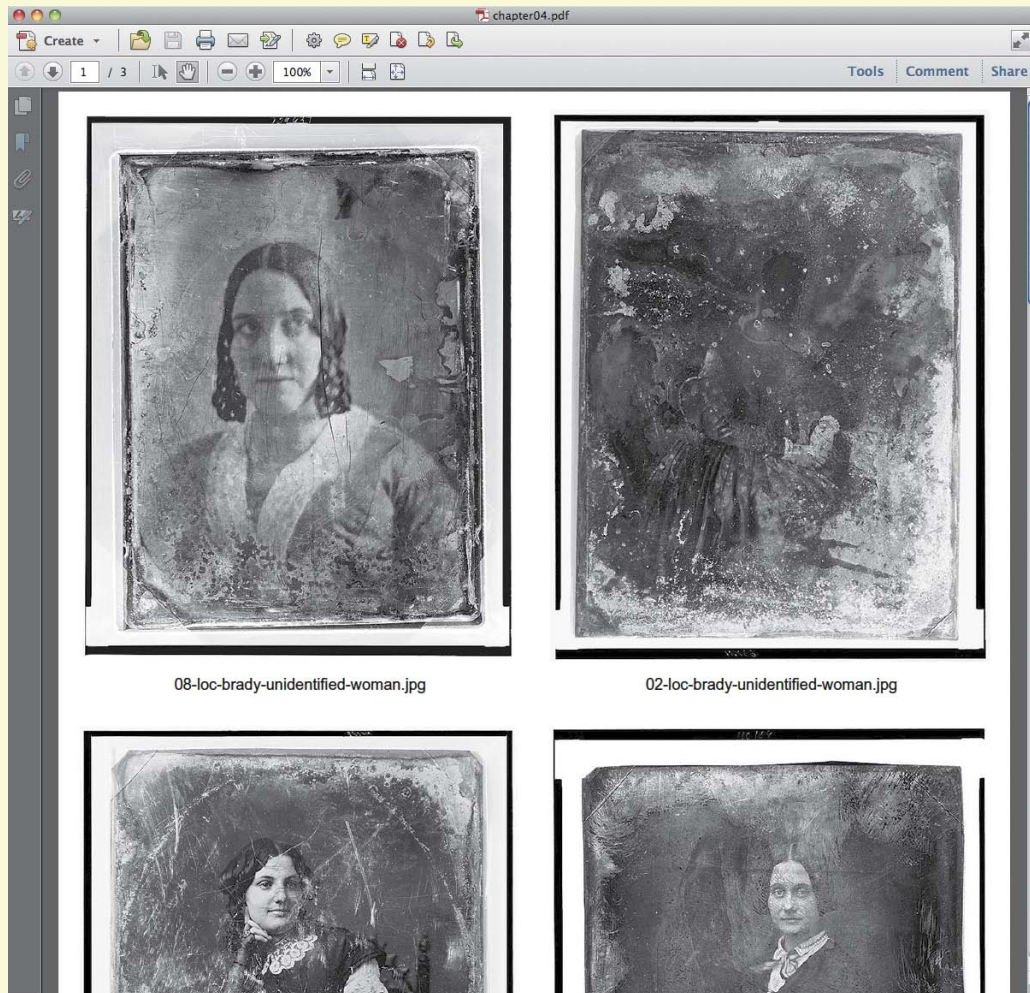


FIGURE 4.8 Completed PDF contact sheet created in Chapter 4 exercises.

In the following exercises, you'll learn how to rename a folder of files, label (or rate) your files, and generate a contact sheet in a PDF, all at the click of a button. In Chapter 16, Automation, you'll use Bridge to apply Photoshop actions.



CAMERA MECHANICS

Basic operations take place when you create a photograph with your digital camera. There may be many adjustments to the camera that you can make, if your camera gives you control over them. These will have a direct result on the aesthetics of the resulting photograph. Most cameras also have an automatic setting, which lets you simply point and shoot. Even if you're just pressing the button, each of the following steps will take place. Details about each step are included in Exercise 2.

- Before shooting, consider adjusting the white balance, ISO, and file size settings. Or, just let the camera do that work for you. (Your camera might not allow you to control some of these settings.)
- Frame a scene by placing your eye to the viewfinder or by peering at the LCD screen on the back of the camera. Many DSLRs don't allow use of the LCD during shooting. If you have both options, consider the pros and cons of each (TABLE 4.1).
- After the image is framed, decide whether to shoot in automatic or manual mode. Do you want the camera to control the amount of light on the sensor, or do you want to control it by balancing the relationship between the f-stop (the diameter of the aperture) and the shutter speed (the quickness of the shutter release)? You'll learn more about f-stop and shutter speed settings in the next step.
- Press the shutter release button. Hold the camera tightly and try to eliminate body movement.
- The shutter will open, and the aperture will enlarge or decrease according to the f-stop settings.
- Light will be recorded on the digital sensor.
- The shutter will close based on the duration of time indicated by the shutter speed settings.
- You can preview your image immediately as it is saved on a memory card.

LCD VERSUS VIEWFINDER: WHERE SHOULD YOU LOOK WHILE FRAMING A PHOTOGRAPH?

This choice is dictated by personal preference and limitations presented by the type of camera you're using. When using my DSLR, I always use the viewfinder. However, on my iPhone, I'm forced to use the LCD.

LCD	VIEWFINDER
Accurately represents the framed image space	Can be slightly inaccurate in consumer cameras due to what is called "parallax" as the viewfinder location is slightly above and to the left of the lens
Can lead to instability: since you'll hold the camera away from your face to see through the viewfinder, the camera is less stable than it would be if you were holding it closer to your balanced body.	Often leads to greater stability: you'll hold the camera to your face while making the photograph. Remember to square your hips and be still while you shoot.
Drains battery power	No extra battery power is required for composing through the viewfinder.

TABLE 4.1



CAMERA SETTINGS

The following items are elements you might be able to control when making a photograph. All digital cameras have different user interfaces. I've indicated where these items typically appear on the cameras I've seen in my classroom. Yours might be different. The best thing to do is read your camera's manual, or at least view the page containing the illustration of the camera and its settings! Did you lose it (or throw it away with the box)? Most manuals can be downloaded from the manufacturer's website.

- **File Size, Compression, and/or File Format.** These typically appear in the camera menu or function area.

Even if your camera isn't terribly fancy, you may have a choice of creating small, medium, or large images, or you might even have a specific set of resolutions, via pixel dimensions or megabytes, to choose from in the File or Camera menu.

You also might be able to choose to shoot in JPG, TIFF, or even RAW mode. Shooting in RAW mode yields the most information and adaptability, but processing a RAW image is outside the scope of this book. (There are plenty of books that deal specifically with Camera RAW, and I encourage photography students to become familiar with these details.) If you can choose between shooting in JPG or TIFF modes, you should know that the JPG will be more compressed (and usually a smaller file size) than the TIFF.

- **ISO.** ISO typically appears in the Camera or Function menu.

The ISO rating is analogous to what was once referred to as the *film speed*. Silver nitrate is the light-sensitive chemical found in film. The amount of silver in the film stock directly correlates to its ISO rating.

- **Low ISO.** A low ISO rating (25 or 50 in special films, 100 or 200 in the kind of film you can purchase at the drug store) indicates that there's little silver nitrate in the film. This in turn means that you'll need a lot of light in order to register the image on the film. If you're shooting outside on a bright day, set the ISO to a low setting. What's the advantage of using a super low ISO setting? In the film world, you'll see less film grain in the resulting print. In the digital world, the same rule applies—though we'll just call the film grain “digital noise.” If you're shooting in a studio and you want to create a high-quality print devoid of noise, use the lowest ISO your camera offers and set up plenty of lights.
- **High ISO.** A high ISO rating (800, 1600, 3200 in special films, 400 in common film stocks) indicates that there's a large quantity of silver nitrate in the film. This in turn means that you'll need little light in order to register the image on the film. If you're shooting indoors, in the late evening, or at night, you'll probably need to set the ISO to a high setting. The advantages of using a high ISO setting are that you have greater flexibility in low-light situations. However, you'll see the grain of the film or some digital noise in your files (FIGURE 4.9).



FIGURE 4.9 Although high ISO settings make it possible to create images in low light, they often result in digital noise. Photograph by Thomas Van Deusen.

- **White Balance.** Along with ISO, this typically appears in the camera or function menu.

Setting the white balance on your camera, if you're able, will ensure that the whites appear as a true white, and that the rest of the colors in the spectrum of the photographs are not the victims of a nasty "color cast" (FIGURE 4.10).

The following are typical (self-evident) setting labels or icons you might find in a menu or function area. Match the white balance lighting to your situation: Auto (A-WB), Daylight (sunshine icon), Cloudy (cloud icon), Tungsten (lightbulb icon), and Night (moon or flash icon).

- **Aperture.** If you can control the aperture, you'll typically do so with a dial or button near the top of the camera body.

The aperture is the size of the opening that light travels through the lens to the digital sensor. The wider the aperture opens, the more light you'll send to the digital sensor; of course, the inverse is true, too (FIGURE 4.11). The aperture's diameter size is controlled by the f-stop. Here's the tricky part: the smaller the f-stop number, the wider the aperture is open.



FIGURE 4.10 Three photographs of the same scene made in natural daylight demonstrate the results of different white balance settings. If the white balance setting on the camera does not match the situation, the result may be an unpleasant color cast.

UNDERSTANDING F-STOP VALUES

The trick is to remember that the f-stop is a ratio, which means that the f-stop number you select on your camera refers to the denominator of a fraction where the numerator is 1. There is an inverse relationship between the size of the number and the size of the aperture opening. A small denominator corresponds to a big ratio (or a wide aperture).

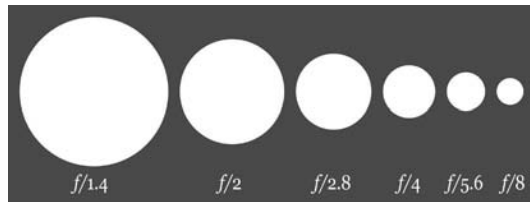


FIGURE 4.11 This illustration demonstrates decreasing aperture sizes. Created by Cbuckley and updated by Dicklyon on Wikipedia.

- **Depth of Field.** When the aperture is wide open (for example, $f/2$) the resulting image has a small area of focus; a large f-number (for example, $f/22$) generates a large area of focus in the image. Photographers refer to this optical phenomena as “depth of field.” Shallow depth of field is created with lower f-stop numbers (FIGURE 4.12), while greater depth of field is seen in photographs made with larger f-stop numbers (FIGURE 4.13). Figures 4.12 and 4.13 showcase the results of using lower and higher f-stop values and the types of visual situations where one is preferred to the other.



FIGURE 4.12 Lauren Thompson, Snow White series, 2012. In this image, a low f-stop was used to create shallow depth of field. The focus on the figure's face contrasts with the blurriness of the tree branches she stands behind.



FIGURE 4.13 Tracey Cole, 2012. In this photograph, a high f-stop is used to capture the details in the glass object.



FIGURE 4.14 Ashley Tingley, *Untitled*, 2012. Photographs captured at a fast shutter speed appear to freeze time.



FIGURE 4.15 David Le, *Untitled*, 2012. Slower shutter speeds record movement.

- **Shutter Speed.** If you can control the shutter speed, you'll typically do so with a dial or a button near the top of the camera body.
 - The shutter speed indicates how quickly (or slowly) the shutter will open and close. In automatic mode with a reasonable amount of light, the shutter will probably release at about 1/60th of a second.
 - Anything above 1/60th of a second (which might just be indicated by the number "60" on your digital camera) is considered somewhat fast. A fast shutter speed will appear to "freeze" time, allowing viewers to see a moment that often escapes us. A cup filled with liquid in midair, for instance, can be recorded before it spills (FIGURE 4.14).
 - A slower shutter speed (1/15th of a second, 1/8th of a second, or more) will result in images that record subject matter movement. In FIGURE 4.15, the musicians and lights are blurred as they move rapidly on the stage.

SHUTTER SPEED AND SHAKY PHOTOGRAPHS

Your photographs will not display movements due to your physical inability to remain completely still at a shutter speed of 1/60th of a second or less (1/125th of a second, 1/250th of a second, and so on). With practice, you can probably even seem to hold the camera still at 1/30th of a second. Some people claim to be able to get a still image while hand holding the camera at 1/15th of a second (but that has never been the situation for me). If you plan to shoot at a slower shutter speed, use a tripod or steady the camera without human interference.

- **Exposure Value (EV or E/V).** If you can't control the f-stop or shutter speed, you may be able to alter the exposure value, typically accessed by a button on the back of the camera near the LCD. This button will normally allow you to take a photograph with slightly lighter and darker exposure values. On some cameras, you can press a Plus (+) or Minus (-) button; on others, you just spin a dial to move across a sliding scale. Altering the exposure value is an essential skill to learn so you can bracket your exposures while you're still learning to create photographs.

EXERCISE 3 BRACKETING

Like the rule of thirds (see Exercise 5), bracketing is one of the first lessons new photographers learn. Since you're drawing with light when you create a photograph, the exposure of light that you set in your camera has one of the biggest visual impacts on the photograph. Bracketing is a method of increasing and decreasing the exposure value on the same scene in order to understand the visual results of an array of exposure values in a particular lighting situation. If you're new to photography, bracketing in as many lighting situations as you can will help you understand how light will register in the visual image made by your camera.

On any camera where you can control the exposure value, use the bracketing technique by shooting the same scene at least three times (TABLE 4.2). First, take a photograph using the most accurate exposure value according to your light meter (built in to DSLRs or likely whatever the automatic mode will indicate on consumer cameras). Then create another photograph of the same scene with one stop of additional light (a single shutter speed setting or f-stop setting). Follow this by creating one more photograph of the same scene by decreasing the amount of light to the sensor by one stop (a single shutter speed setting or f-stop setting in the opposite direction), starting from the "center" or original metered reading (FIGURE 4.16).



FIGURE 4.16 Bracketed photographs. If you're only bracketing with three images, watch out for digital cameras that include half-stops. It's best to bracket at least five or eight times if you're brand new to the concept. You'll learn how your camera operates by experimenting.

COMMON BRACKETING SETTINGS

	DSLR If you can control the f-stop and shutter speed settings, use the following list.	CONSUMER CAMERA If you simply have the Exposure Value (EV or E/V) button on your camera, use the following list.
Photo 1	Use the most accurate exposure value according to your light meter. You may need to manually adjust your shutter speed or f-stop value, or both, to achieve a balanced meter reading.	Use the most accurate exposure value according to your light meter. You'll probably see in the Exposure Value (EV or E/V) area of your camera settings that there's a dotted or dashed line, or perhaps a series of vertical straight lines with an indicator (a dot, usually) of the current exposure value. In automatic mode, the exposure value will likely fall in the center of the line. Pressing the EV button (or spinning a dial) will let you register that dot to the right or left of the center mark, which increases or decreases the exposure value.
Photo 2	Lighten the exposure value by one f-stop or by one notch on the shutter speed scale. For instance, if Photo 1 was taken at 1/60th of a second, take Photo 2 at 1/30th of a second to lighten the exposure value by one notch down on the shutter speed scale. (The shutter will remain open longer, allowing more light to register on the digital sensor.) Or, if Photo 1 was taken at <i>f</i> /5.6, take Photo 2 at <i>f</i> /4 to increase the amount of light through a wider aperture.	Lighten the exposure value by one notch to the right of the center on the exposure value line. You'll have to figure out how to add and subtract a notch on the EV scale.
Photo 3	Now decrease the exposure value. Create a photograph that's darker by one f-stop or one notch on the shutter speed scale. For instance, if Photo 1 was taken at 1/60th of a second, take Photo 3 at 1/125th of a second to darken the exposure value by one notch up on the shutter speed scale. Or, if Photo 1 was taken at <i>f</i> /5.6, take Photo 3 at <i>f</i> /8 to decrease the amount of light through a narrower aperture.	Darken the exposure value by one notch to the left of center on the exposure value line.

TABLE 4.2



BEFORE YOU SHOOT

Before you take off with your camera for a photography session, set aside an intentional moment where you consider some of the camera settings that may not change throughout your shoot:

- Prepare for the lighting situation: Is it daylight? Is it near evening?
 - Set the ISO for the amount of light you expect to capture.
 - Set the white balance for the type of lighting condition.

APERTURE PRIORITY OR SHUTTER SPEED PRIORITY?

Many prosumer-level cameras offer the ability to shoot in aperture or shutter speed priority. This is likely to be a setting listed on a dial (A or S). If your goal is to create an image with shallow depth of field, for instance, you might shoot in aperture priority mode and set the f-stop to a low number. The camera would then adjust the shutter speed for you, based on the light meter reading that it detects. Alternatively, perhaps you want to create a “freeze frame” of your friend as she dives from a high platform. You might shoot in shutter speed priority mode and set the shutter speed to a low fraction (maybe 1/125th of a second or 1/250th of a second). In this case, the camera would control the f-stop according to the light meter.

- Where will the photographs be published or printed? Do you need high-resolution images or are these just “practice shots?” Will the photographs be published strictly on a website?
 - Set the image size or resolution. (Use the largest size if you plan to print your images, and a medium or smaller size for experiments or web content.)
 - Set the format of the file. Use RAW only if you know how to process the RAW formatted images. If this is currently beyond your expertise, it may not be worth saving such large image sizes at this point in time.
- If you have the option, do you want to shoot in full manual mode, shutter speed priority, or aperture priority? Set the mode now.



RULE OF THIRDS

As you’ve seen, the rule of thirds is a compositional concept that photographers use while framing the image during its production. Some cameras have a rule-of-thirds grid that you can superimpose in the viewfinder to see the guides while you’re creating the photograph. In this exercise, you’ll see how to use this compositional structure in Photoshop to assist you during post-production editing.

1. Open the file **dog-beach.psd** from the **rule-of-thirds** folder.
2. I’ve purposefully selected a lousy composition for you to work with in this exercise. Where are the first and second focal points? What’s happening at the edges of the frame? Notice that the middle dog and the large branch are two main areas of focus. Where are they positioned in the frame? The top of the frame is full of distracting information: the cone, the volleyball net, and the houses in the background are all unnecessary to the activity in the primary focal area. In the next step, you’ll reframe this image.

WORKSPACE > ESSENTIALS

Open Photoshop and set the workspace to Essentials by selecting it from the pull-down list in the Application Frame or by choosing the Window menu > Workspace > Essentials.

3. Choose the Crop tool from the Tools panel and set the tool options to Unconstrained and View: Rule of Thirds (FIGURE 4.17) in the Options panel.
4. Pull the Crop anchor at the middle of the top frame down so the top of the frame touches the tip of the red dog's tail (FIGURE 4.18).
5. Notice where the rule-of-thirds guides are located on the image. The branch is located precisely in the central square. You'd rather see main elements on one of the vertical or horizontal lines than inside what would be a cell if you think of the grid as a table. Move the crop guide on the left edge of the frame toward the middle of the image until the branch is more or less aligned on the left vertical rule-of-thirds guide (FIGURE 4.19).
6. Let's eliminate some of the bottom area of the image, just as you did with the top—the information at the bottom is simply distracting the viewer from the activity. Move the bottom crop guide toward the top of the image, keeping the idea of a two-thirds to one-third compositional ratio in mind. I adjusted the bottom crop guide so that the Weimaraner's front left paw is planted on the top horizontal guide (FIGURE 4.20).
7. You can continue to adjust the crop guides until you're satisfied with the crop. Notice that while you're cropping the image, the Layers panel indicates that you're in a Crop Preview (FIGURE 4.21). Press the Commit Current Crop Operation button in the Options panel when you're finished (FIGURE 4.22).

Save the file as **dog-beach-cropped.psd** to complete the exercise.

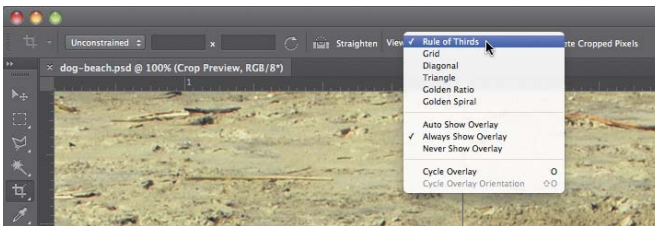


FIGURE 4.17 The rule-of-thirds grid can be viewed by using the Crop tool.



FIGURE 4.18 Adjust the Crop anchor to eliminate distracting information.



FIGURE 4.19 Align the subject on the rule-of-thirds grid.



FIGURE 4.20 Pay attention to the edges of the photographic frame when cropping the image.

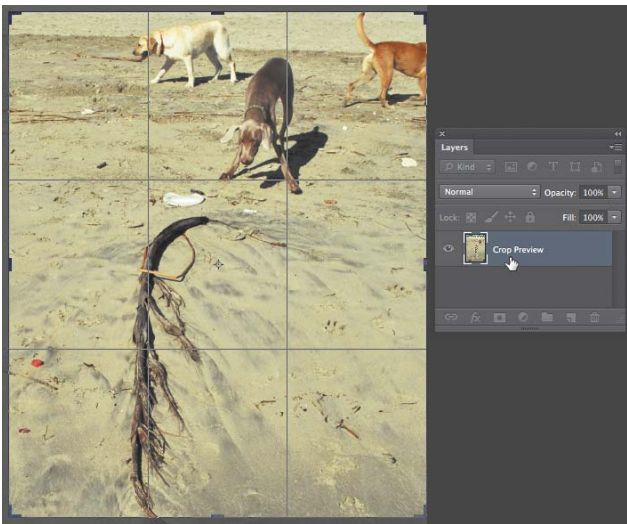


FIGURE 4.21 The Layers panel will display the layer as Crop Preview while you're working with the Crop tool.



FIGURE 4.22 Starting with Photoshop CS6, you have the option to retain or delete cropped pixels. I prefer to retain pixel information, so I leave the Delete Cropped Pixels button unchecked, as seen here. Click the checkmark icon to exit the Crop tool or press the Return key.

EXERCISE 6

BRIDGE WORKSPACES

For the following exercises, you may use the images from your photo shoot or the series of photographs in the **batch-rename** folder. To demonstrate the following exercises, I used 12 daguerreotype photographs taken by Mathew Brady with the words “unidentified woman” in the title, which I downloaded from the Library of Congress website. Place the files in one easily accessible folder. I copied mine to a **chapter04** folder on my desktop.

1. Launch Bridge from the Mac dock or the PC Start menu, as you would open any other application. However, if you’re opening Bridge, you probably have a particular set of files in mind that you want to review. An easy way to get into Bridge is to drag and drop the file or folders you want to view directly on the Bridge application icon. This method of opening the application forces a specific set of images to be on view immediately, once Bridge is open. Drag your folder of photographs on the Bridge icon (FIGURE 4.23).
2. To ensure that your screen looks similar to mine, choose the Window menu > Workspace > Essentials.
3. Notice that the content of the folder you dragged on the Bridge icon appears in the main window (the second of three columns) beneath a tab labeled Content. The file path to this content appears on the top left of the application window (FIGURE 4.24).
4. The top of the first column holds a set of tabs for Favorites and Folders. If your folder isn’t displaying in the Content area, you can use one of these two tabs to navigate to the folder you want to view. (For instance, if your folder is located on the desktop, you can click the Desktop button from the Favorites list and then double-click the appropriate folder in the Content area.) Locating your files within Bridge is essential because you won’t be able to do anything to your files unless you can see them in the Content area.
5. Drag the slider in the lower right of the Content area to enlarge or decrease the thumbnail view of your files (FIGURE 4.25). Since I only have 12 files in my folder, I zoomed out enough to see all of them on the screen at once.



FIGURE 4.23 Open a folder by dragging it onto the Bridge icon.

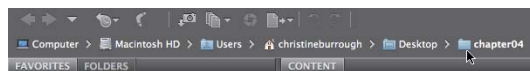


FIGURE 4.24 In Bridge, the file path to items in the Content area is a reminder of the location of files on the hard drive.



FIGURE 4.25 You can use the slider near the lower-right corner of the Content area to increase or decrease the size of the thumbnails.



FIGURE 4.26 Information about the file appears in the Metadata Placard. If I'd used my DSLR to take these images, I would also see f-stop, shutter speed, and ISO information.



FIGURE 4.27 When a file is selected, its properties appear in the Metadata Placard.

- The column on the far right contains the Metadata tab. This provides you with the most information about your files. Click once on any of the images in the Content area—be careful not to double-click, as this may open your file in another application! Meta information (or information about the selected file) appears in both the Metadata Placard (FIGURE 4.26) and the File Properties menu. The Metadata Placard is especially helpful if the images were created on a digital camera that stores metadata within the image file. (For instance, digital single lens reflex cameras will store this information.) If the files were downloaded from a website (as mine are), the Metadata Placard won't show as much information. However, the File Properties menu will enable you to learn about the file's format (or document type), size, pixel dimensions, color mode, and more (FIGURE 4.27). Quick access to this type of information can be extremely helpful when you have a folder with many similar files.

BE CAREFUL! Double-clicking on a file in Bridge may open that file in a different application, such as Photoshop or Illustrator. You can alter these settings in the Preferences dialog, **Command(⌘)-K**, by selecting File Type Associations from the list in the left column and choosing an application to open for files in the JPG (or other) format.

EXERCISE 7

BATCH RENAME

KEY COMMANDS

Press **⌘-A** to select all the files in the folder (that is, all files present in the Content area). Use the Shift key to select files that are next to one another. If you accidentally include a file in your selection, hold the Command key while clicking on it once to deselect it from the group.

The tool I use most in Bridge is Batch Rename. This command lets you assign a new file name to a group of files. You can rename an entire folder of files or just a few files selected within a folder.

1. The file names that I've assigned to the 12 photographs are long. I included a number, the source ("loc" for "Library of Congress"), the photographer's last name, and the name of the series. Let's assume that you're going to select half of these original files to modify in your own work. You want a new folder for your work, and you want to rename the files with your first initial, last name, and a sequence number (for example, `x-burrougho1.jpg`). Before running a batch rename, decide on a system for renaming the files. Start by selecting the files you want to use. In this hypothetical situation, I'll select every other file by holding the Command key as I click on each of them in the Content area (FIGURE 4.28).
2. With the files actively selected (you'll see an outline around the selected file thumbnails), choose the Tools menu > Batch Rename. In the Batch Rename dialog box, you'll make several choices as follows.

FIGURE 4.28 To select multiple files in a row, press the Shift key and click from the first to the last file. To select multiple files that are not positioned next to each other, press the Command key while clicking one time on each image.



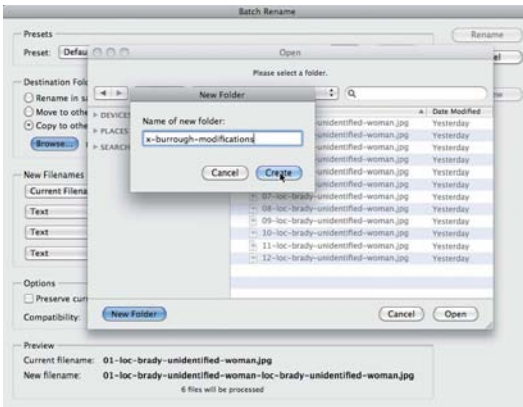


FIGURE 4.29 Create a new destination folder during the Batch Rename process.



FIGURE 4.30 Rename files using the new filename fields. Add and delete fields by pressing the plus and minus icons to the right of each field.



FIGURE 4.31 Change the first filename field to Text.

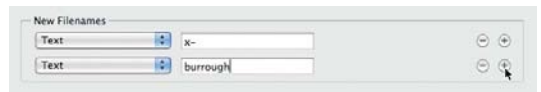


FIGURE 4.32 Add an additional filename field after the second one by clicking on the plus icon.

3. In the Destination Folder area, press the radio button next to “Copy to other folder” because you are going to create a copy of the original files with a new name. Press the Browse button, locate your **chapter04** folder (or the folder where you’re saving the images in the Content area), press the New Folder button, name the new folder (FIGURE 4.29), and then press the Open button.
4. In the New Filenames area, I pressed the small Minus (-) radio button to the right of several of the Filenames fields (FIGURE 4.30). The original file name was lengthy, and I find it easier to start anew.
5. Change the first Filenames field to Text and then enter the first initial of your name followed by a dash (-) in its field (FIGURE 4.31).
6. Press the Plus (+) radio button to the right of the first Filename field you just set to add more information to the filename.
7. Select the Text option again and enter your last name in the field. Press the Plus button (FIGURE 4.32).
8. Choose the Sequence Number option from the pull-down list. Be sure the numbering starts with “1” and choose Two Digits from the pull-down list to the right of the field (FIGURE 4.33).

BE CAREFUL! I usually rename my files in the same folder rather than copy my files to a new folder. However, consider yourself warned. When you rename files in the same folder, you’ll have lost the original names. You can’t undo a batch rename.

You may not need to “clean” your Filenames fields area. You’ll add new fields in the Step 6.

FIGURE 4.33 If it's possible, you'll end up with more than 99 images, so choose a name with three digits. A folder with fewer than 99 files should be saved with two digits if you're using sequence numbers in the name in order to keep the 10th through 99th files organized. You can see the file path to the location of the saved new folder next to the Browse button in the Destination Folder area. Also, you can see a preview of the new file names in the Preview area.

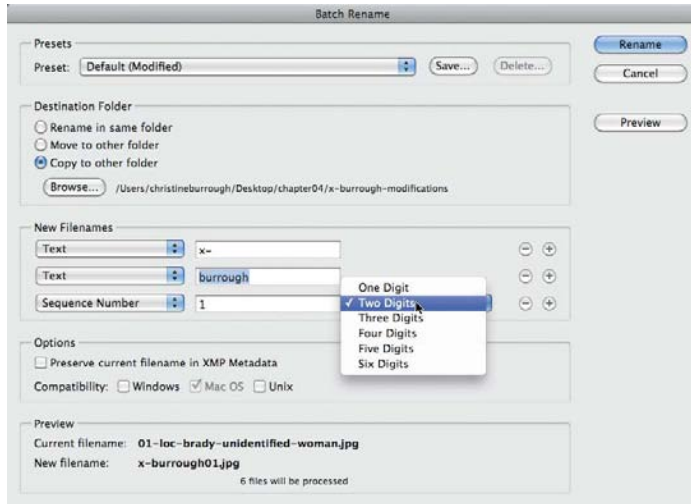


FIGURE 4.34 Double-click the folder (left part of the screenshot) in the Content area to open its contents (right part of the screenshot). Notice the file path at the top of this window area.



9. Review your selections. You should see the proper file path to the new folder. An example of the new file names appears at the bottom of the dialog box, as well as a message about how many files will be renamed. If all of this seems accurate, press the Rename button.
10. Scroll down in the Content area if you need to and find the new folder you created. Double-click the folder to open its contents. You should see your six renamed files in the Content area (FIGURE 4.34).

SCREENCAST 4-1 RENAMING AND RANKING FILES IN BRIDGE

Renaming files in Bridge using the Batch Rename tool is simple, but it comes with a heavy price: there's no going back! Watch a short video demonstrating this process.

All screencasts are available on the companion website, www.digitalart-design.com or on the YouTube playlist, www.youtube.com/playlist?list=PLAy6P5loEjy2v3kZKt8spqJ50nLb2XQI.

EXERCISE 8

GENERATE A PDF TO SHOWCASE YOUR FILES

If you had one or several sheets of negatives to preview, you'd go to the dark-room, press the negatives directly onto a sheet of sensitized photographic paper with heavy glass, and expose the glass-negatives-paper sandwich with the light of an enlarger. The resulting proof is called a *contact sheet* because of the direct (negative in contact with the paper) printing process. Digital images can be previewed on the camera, so in a sense the need for contact sheets is not terribly urgent. Yet it's extremely common to share a set of images, mock-ups, or compositions with others in a single file. Earlier versions of Photoshop (before CS4) included an automated process for creating these types of documents, aptly titled *Contact Sheet*. Starting with CS4, the Contact Sheet automated task was transferred to Bridge. In the following exercise, you'll create a PDF of thumbnail (or larger)-sized images using Bridge's Output Workspace.

1. View the contents of your **chapter04** folder (my set of 12 images or your own photos) in Bridge. I had to choose the View menu > Show Reject Files to see all 12 images. You may also see the folder you created in Exercise 3.
2. Press **⌘-A** to select all the files. Press the Command key while deselecting the folder or any other files you don't want to include in the PDF (FIGURE 4.35).



FIGURE 4.35 To select all the files without selecting the folder press **⌘-A** (to select all) and then hold the Command key while clicking once on the folder to deselect it. Click and drag to move the files into the deselected folder.

FIGURE 4.36 Select files in the Output workspace to save them as a PDF.



3. Notice that the selected items appear in the Preview tab in the top-right column.
4. Press the Output button in the top-right area of the application window or choose Window > Workspace > Output (FIGURE 4.36). Notice that the layout of the tabs in Bridge changes. The selected content items are organized in a single row along the bottom of the application. The main area is reserved for the Preview tab. The right column is dedicated to the Output tab and menus beneath it.
5. Starting at the top of the Output tab, make the following selections:
 - A. Press the PDF button. (It's selected by default.)
 - B. In the Document menu, choose a page preset (I selected US Paper), a size (Letter), and set the Quality slider to the resolution of your choice. If you're just sharing files for a screen presentation, you can set the resolution as low as 72 or 96 DPI. I typically ask students to set the quality to 150 DPI so you can zoom in on images without seeing them pixelate during a critique session.
 - C. In the Layout area, set the number of columns and rows you want to see. The more columns and rows you choose, the smaller the images will be on the page. I set mine to 2 by 2 and checked the Use Auto-Spacing box.

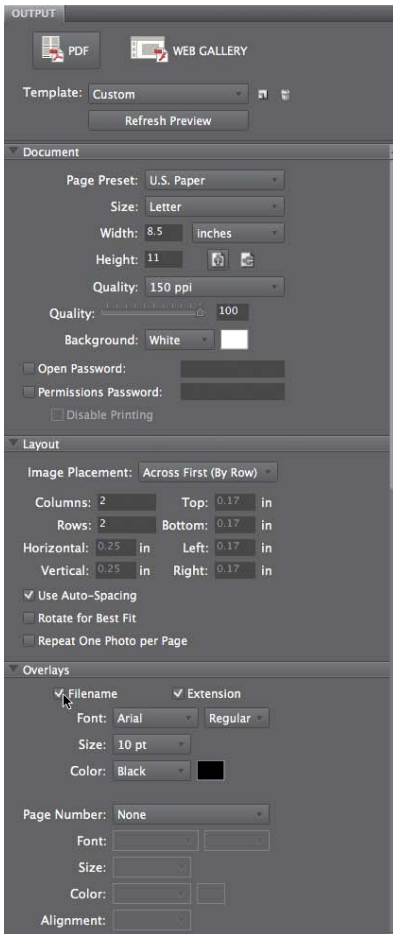


FIGURE 4.37 Modify the Output panel to customize your PDF. I tend to keep Overlays active in order to see the file name beneath each thumbnail in the PDF.

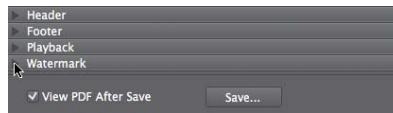


FIGURE 4.38 Collapse areas of the Output panel that you're not using by clicking on the sideways arrow to the left of the menu name.

- d. The Overlays area lets you include a file name with your image. I keep the box next to Filename checked, because I like to see the filename so I can check how my students are naming their files (FIGURE 4.37). Also, it easily allows you to reference an image by name, rather than by description.
6. Scroll down in the Output area. I don't often use the Header, Footers, Playback, or Watermark menus, but they're clearly labeled should you want to add those features to your document. You can collapse the menus you don't want to use by pressing the sideways arrow to their left (FIGURE 4.38). Finally, check the View PDF After Save box and then press the Save button.
7. Save the PDF in your **chapter04** folder. Open it if it doesn't open automatically (if you forgot to check the View PDF After Save button, for instance) and preview your files.

8. Check the PDF file size on your operating system. On a Mac, you can see the file size by viewing the files in list format or by clicking on the file once and then choosing File menu > Get Info in the Finder or Desktop area. On a PC, you can right-click the file and view the file size in the Properties area. Since I set the resolution to 150 DPI (which is relatively low), my document showcasing 12 images is less than 4 megabytes—a reasonable size for emailing or uploading the file.



LAB CHALLENGE

Find or take a series of photographs to demonstrate the theme “time passing.” This is a classic photography assignment for which many people have photographed a flower throughout its growth and death stages. Don’t choose to document a flower! What other visual references to the passing of time can you develop? (Stretch your imagination and avoid imagery of clocks, too). Take several shots based on one idea and place them in a single PDF using Bridge.

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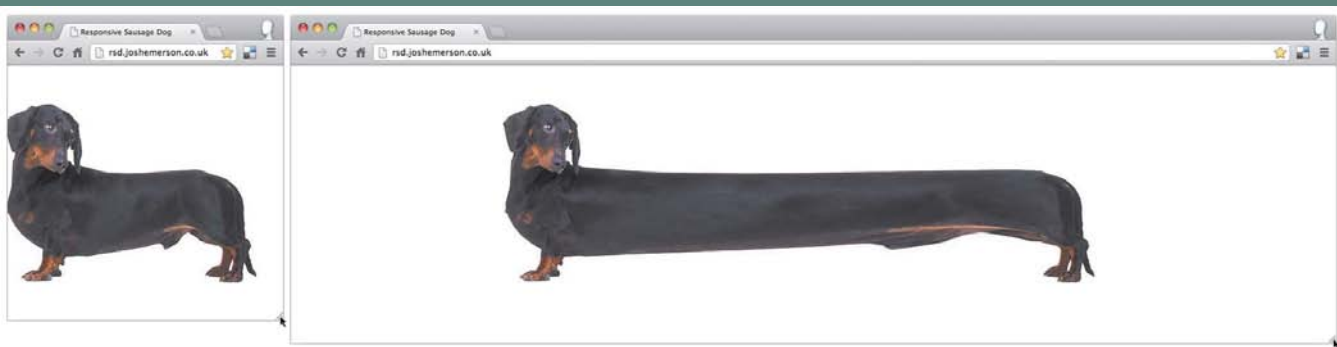


FIGURE S5.1 Josh Emerson, *Responsive Dog website*. Resize your browser to see the dog "respond" to your browser's dimensions.