

## Photography

**Level:** Introductory

**Prerequisite:** None

**Length of Course:** Full year

Digital photography explores the digital photographic process as a method of creative, visual communications. It also investigates art principles and the development of technical skills to communicate effectively. This course will cover the use of and type of hardware and software necessary to do digital imaging. All work is done on the computers. This course also focuses on the anatomy of taking a good photograph. Application of design principles, lighting, and composition are the emphasis of all assignments. Projects include: landscape photography, still life photography, portraiture and pet wild life photography, designing magazine and CD covers, creating posters, photo collages, surreal photos and more. Adobe Photoshop is used as the primary photo editing/manipulating tool and prints will be made with a high-resolution printer.

### Foundational Objectives

- To create an awareness of the processes and uses of photography.
- To develop an appreciation for photography as an art form.

### Common Essential Learnings Foundational Objectives

- To discuss the role photography plays in society.
- To state the basic properties of light.
- To explain in simple terms how a photographic image is produced.

## Units of Study

### Photography

#### Chapter 1

- What is a Digital Photograph?
- Why Go Digital?
  - Free Photography, Photographic Freedom
  - The Three Steps of Digital Photography
- How a Digital Camera Works
  - It's All Black and White After All
  - There's a Computer in Your Camera
  - Where We Seem to be Headed
- The Steps in Buying a New Camera and Other Equipment
  - Think About Your Interests
  - Decide About Size
  - Decide About Lens
  - Download the Manual
  - Check New Model Plans
  - Check Camera Sites
  - Check Discussion Forums
  - Check Camera News & Review Sites
  - Explore On-line Auctions
  - Visit Trustworthy Stores
  - Watch out for Unbundling
  - Avoid Gray Market Products
  - Check Postage Rates and Sales Taxes

#### Batteries

#### Other Features

- Look and Feel
- Size and Weight
- Control Panel
- Illumination
- Mirror Lockup
- Custom Functions
- Time-Lapse (Intervalometer Mode)
- Photography
- Multiple Exposures
- Animations
- Tripod mount
- Water and Shock Proofing
- Self-timer/Remote Control
- Date/time Indicators
- Written Annotation
- Sound Recording
- Power Management
- Special Effects
- GPS
- MP3 Player
- Folders
- Software
- Firmware Update
- Image Verification
- EXIF Information

#### CHAPTER 3. STUDIO EQUIPMENT

#### Studio Lighting

#### Candidates for

- Studio Lighting
- Lighting
- Backgrounds
- Risers
- Special Bulbs
- Portrait and Product

- Avoid Extended Warranties
- Check Return Policies, Restocking Fees
- Buy No Extras

- Scanners— Photographing Photos

- Photo Transfer (Bulk Scanning) Services
- Scanning Basics
- Color or Bit Depth
- Resolution
- Dynamic Range
- Film Scanners
- Flatbed Scanners
- Drum Scanners












## CHAPTER 2. DIGITAL CAMERAS

- Types of Digital Cameras
- Camera Controls
- Composing Images
- Continuous Photography
- Shooting Movies
- Panorama Mode
- Photographing in Black & White
- Image Sensors— Types
- Image Sensors— Sizes and Aspect Ratios
- Image Sensors— Resolution
- Image Sensors— Sensitivity and Noise
- Camera Responsiveness
- Image Formats
- In-Camera Image Storage
- Playback Mode
- Transferring Images
- Lenses
  - Lens Information
  - Choosing Focal Lengths
  - Zoom Lenses
  - Normal Lenses
  - Short Focal Lengths
  - Long Focal Lengths
  - Depth of Field Preview

- Photography
- Using Continuous Lights
- Stands
- Reflectors
- Bulbs
- Using Strobes
- Connecting the Camera and Lights
- Hot shoes
- PC Terminal
- Wireless Remote Flash

## CHAPTER 4. OTHER CAMERA EQUIPMENT

- Tripods & Monopods
  - Tripods
  - Monopods
  - Accessories
- Tripod Heads
  - 3-Way Pan/Tilt Heads
  - Ball Heads
  - Other Heads
- Quick Release Systems
  - The Bogen/Manfrotto System
  - The Arca-Swiss system
- Other Camera Supports
  - Gimballed Mounts
  - Beanbags
  - Window Mounts
  - Suction Mounts
  - Clamps
  - Focusing Rails
  - Other
  - Subject Stabilizers
- Flash and Flash Accessories
  - Flash Brackets
  - Battery Packs
  - Reflectors and Diffusers
  - Flash Extenders
  - Slave Units
- Image Storage and Viewing
- Digital Picture Frames
- Camera Straps and Bags
  - Neck Straps
  - Chest straps or

- Depth of Field Scales
- Minimum Focus
- Distance
- OEM and 3rd Party Lenses
- Older Lenses
- Newer Lenses—
- Looking Down the Road
- Lens Accessories
-  Macro Mode and Macro Lenses
-  Lens Accessories
-  Image Stabilization
-  Exposure Modes
-  Metering
-  Shutters
-  Exposure Controls
  - Exposure Compensation
  - Autoexposure Lock (AE Lock)
  - Autoexposure Bracketing (AEB)
  - Gray Cards
  - Exposure Increments
-  Histograms & Highlight Warnings
  - Evaluating Histograms
  - Highlight Warning
-  Focus
  - Focus Settings
  - Focus Zones
  - Servo Focus
  - Predictive Focus
  - Focus Assist
  - Focus Lock
  - Focus bracketing
  - Landscape Mode
  - Depth-of-field Mode
-  White Balance
  - White Balance Bracketing
  - Color Spaces
-  Flash
  - Flash Power and Range
  - Calculating a Guide

- Harnesses
- Vests
- Lens Pouches
- Shoulder and Hip Bags
- Camera Backpacks
- Rigid Cases
- Camera Pouches and Cases
- Camera Bags
- Tripod Cases
- Waterproofing while Shooting

## CHAPTER 5. APPENDIX

- Glossary
- Caring for Your Camera
  - Cleaning the Image Sensor
  - Cleaning the Camera and Lens
  - Protecting your Camera from the Elements
  - Protecting when Traveling
  - Storing a Camera
  - Caring for Yourself

Number Section  
 Calculating an F/Stop  
 Section  
 Calculating the  
 Maximum Range  
 Section  
 Exercises  
 Flash Sync and Shutter  
 Speeds  
 Flash Modes  
 Flash Exposure  
 Compensation  
 Flash Exposure  
 Bracketing (FEB)  
 Flash Exposure (FE)  
 Lock  
 High-speed sync (FP)  
 Flash  
 Stroboscopic Flash  
 External Flash Units  
 Slave Flash Units  
 Ring Flash

#### CAMERA CONTROLS & CREATIVITY



- Chapter 1
  - Taking Photos in Automatic Mode
  - Good Things to Know
  - When Things Go Wrong
  - Types Of Digital Cameras
  - Understanding Image Size And Quality
    - Number Of Pixels
    - How an image is Captured
    - It's All Black And White After All
    - Image Formats
  - Exposure Controls—The Shutter And Aperture
  - Choosing Exposure Modes
  - The Shutter Controls Light And Motion
  - The Aperture Controls Light And Depth of a Field
  - Using Shutter Speed And Aperture Together
    - Exposure—Faucets & Buckets Analogy
    - Exposure—Seesaw Analogy
    - Reading an eBook
  - Composing Images
    - Monitors
    - ViewFinders

#### CHAPTER 4. CAPTURING LIGHT & COLOR







- Where Does Color Come From
- White Balance
- Color Balance And Time Of The Day
- Sunsets & Sunrises
- Weather
- Color Choices
- Photographing At Night
  - The Moon
- The Direction Of Light
- The Quality Of Light
- Using Light And Color Creatively

#### CHAPTER 5. UNDERSTANDING LENSES









- Introduction To Lenses
  - Lens Information
  - Image Stabilization
- Understanding Focal Lengths
- Zoom Lenses
- Normal Focal Lengths
- Short Focal Lengths
- Long Focal Lengths
- Portraits And Long Focal Lengths
- Macro Mode And Macro Lenses
- Perspective in a Photograph

#### CHAPTER 2. CONTROLLING SHARPNESS

Lens Accessories

-  Eliminating Camera Movement
  - Holding The Camera
  - Supporting The Camera
  - Using The Self-Timer Or Remote Control
-  Increasing Sensitivity
-  Sharpness Isn't Everything
-  How To Photograph Motion Sharply
  - Speed Of Subject
  - Direction Of Movement
  - Distance To Subject And Focal Length Of Lens
-  Focus
  - Focus Settings
  - Focus Zones
  - Using Focus Lock
-  Depth Of Field
  - Circles Of Confusion
  - Controlling Depth Of Field
  - Using Maximum Depth Of Field
  - Using Shallow Depth Of Field
  - Conveying The Feeling Of Motion

CHAPTER 3. CONTROLLING EXPOSURE

-  The Importance Of Exposure
-  How Your Meter Works
  - Meter Averaging And Middle Gray
  - Types Of Metering
-  When Automatic Exposure Works Well
-  When To Override Automatic Exposure
  - Scenes Lighter Than Middle Gray
  - Scenes Darker Than Middle Gray
  - Subject Against Very Light Background
  - Subject Against Very Dark Background
  - Scenes With High Contrast
  - Hard To Meter Scenes
-  How Overriding AutoExposure Works
-  How To Override Automatic Exposure
  - Exposure Compensation
  - AutoExposure Lock(AE Lock)
  - Auto Exposure Bracketing(AEB)
-  Using Histograms
  - Evaluating Histograms
  - Highlight Warning
  - Clipped Pixels
  - Sample Histograms
-  Using The Raw Format
  - Advantages Of Using The Raw Format
  - Disadvantages Of Using The Raw Format

CHAPTER 6. USING FLASH AND STUDIO LIGHTING

- How Automatic Flash Works
- Flash Sync And Shutter Speeds
- Portraits with Flash
  - Positioning The Flash And Subjects
  - Red-Eye
- Using Fill Flash
- Controlling Flash Exposures
- Using Slow Sync Flash
- Using Available Light
- Using an External Flash
- Using Flash Creatively
- Studio Lighting
  - Candidates For Studio Lighting
  - Lighting
  - Backgrounds
  - Focus And Exposure
  - Tips And Tricks
- Portrait And Product Photography—
  - Introduction
  - The Main Light
  - The Fill Light
  - The Background Light
  - The Rim Light

CHAPTER 7. EXPLORING SPECIAL FEATURES

- Shooting Panoramas
- Photographing In Black And White
- Continuous Photography
- Shooting Movies
- Caring For Your Camera

DISPLAYING & SHARING PHOTOS ON-SCREEN

- CHAPTER 1.
  - Sending Photos to Others—E-mail

- Inkjets—Inks
- Inkjets—Archival Issues

- Attaching photos
- Inserting photos
- E-mail etiquette
- On-line greeting cards
- Sending Photos to Others—Instant Messenger
- Sending Photos to Others—Peer-to-peer Photo Sharing
- Slide Shows—On the TV
  - Direct From The Card
  - Using DVD Discs
  - Wireless Connections
- Slide Shows—On the Computer Screen
  - Photo Sharing Sites
  - Animated GIFs
  - Polished Shows
- Slide Shows—Editing & Polishing
  - Background Music—The Missing Ingredient
  - Choosing a Slide Show Program
  - Producing a Slide Show
- File Formats—The Final Payoff
- Slide Shows—Digital Projectors
- Slide Shows—Digital Picture Frames
  - Screen Characteristics
  - Feeding Images To The Frame
  - Displaying Slide Shows
  - Other Features
- Publishing Your Photos—eBooks
  - Laying Out A Book
  - Converting To PDF
  - Reading an eBook
- Publishing Your Photos—Photo Sharing Sites
  - Uploading Images
  - Taxonomy and Folksonomy
  - Selecting a Site
- Publishing Your Photos—Your Own Web Site
- Publishing Your Photos—Photo Blogs
- Publishing Your Photos—RSS
- Entertaining Yourself—Wallpaper or Desktop Background Managers
- Entertaining Yourself—Screen Savers
- Mapping Your Photos
  - Latitude and Longitude—A Refresher
  - Finding Locations—Dragging and Dropping
  - Finding Locations—Manual Geotagging
  - Finding Locations—Matching Time and Track
  - Adding Images To a Map

## CHAPTER 2. DISPLAYING & SHARING PRINTED PHOTOS

- How Color Photographs are Printed
  - CMYK Colors
  - Continuous Tone Printers
  - Printer Drivers
- Making Prints—On-line
  - On-line Printers
  - Print Sizes
  - Things To Consider
- Making Prints—For Profit
- Making Prints—Locally

- Mating & Mounting Prints
- Framing, Hanging & Storing Prints
  - Framing
  - Hanging
  - Archival Storage
- Photo Books—Do It Yourself
  - Albums and Sheet Protectors
  - Album Kits
- Photo Books—Having Them Done
  - Layout Software
  - Printers
  - Bindings
  - Things To Consider
- Scrapbooks
- Photos On Fabrics
  - Using Iron-On Transfers
  - Printing Directly On Fabric
  - Cross-Stitch Photos
- Photos on Smooth Surfaces
- Photo Gifts and Novelties
- Laser-Etching and Fired Ceramics

## CHAPTER 3. BEYOND THE STILL IMAGE

- Panoramic Photography
  - Panoramic Equipment
  - Displaying Panoramas
- Stereo Photography
  - Capturing Stereo Images
  - Displaying Stereo Images
- Animations
  - Object Photography
  - Continuous Photography
  - Time-Lapse Photography
  - Creating and viewing animations
- Shooting Movies
- Panning & Zooming Still Photographs
- Morphing
- Lenticular Photography—Prints that Move
  - How it works
  - Taking Images
- Flipbooks—Handheld Animations
- Photographing in Black & White and Infrared
- Night Vision
  - Amplifying Existing Light
  - Thermal Imaging
  - Near Infrared Illumination
- Pin Hole Photography
- Oil Paintings—Going Full Circle in Retro

Making Prints—Do-it-yourself  
Inkjet Printers  
Thermal Printers  
Types of Printers  
Laying Out Photos For Printing  
Cards Of All Kinds  
Things To Consider  
Inkjets—Printing Paper  
Paper Types  
Paper Sizes  
Paper Weight and Thickness  
Selecting Paper  
Caring For Paper Prints

New Jersey Core Curriculum Content Standards  
for  
Visual and Performing Arts

**Standard 1.1 The Creative Process**  
**Standard 1.2 History of the Arts and Culture:\**  
**Standard 1.3 Performing**  
**Standard 1.4 Aesthetic Responses & Critique Methodologies**