



Motion Level One Instructor Guide

Apple Certified Trainer (ACT) Program



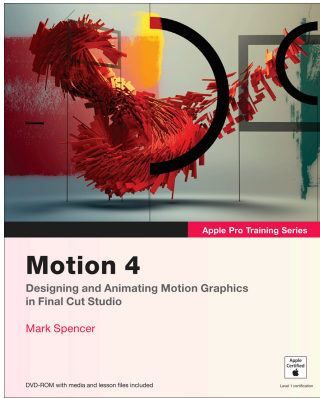
Updated October 2009

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About this Instructor guide

This instructor guide should be used by all Apple Certified Trainers (ACTs) as a companion to the *Motion 101: An Introduction to Motion* course. This guide offers trainers helpful pointers for teaching each lesson, and lists all the files and materials necessary to teach the class.



All ACTs should you read this document and review the “Motion 4” book by Mark Spencer (ISBN 0-321-63529-9). You can order the Apple Pro Training Series courseware with a 35% discount at <http://www.peachpit.com/appletrainers>. The link works internationally and no discount code is needed. Please do not redistribute this link as it is only for ACTs.

You must also review the tutorials at <http://www.apple.com/finalcutstudio/resources/>. Over five hours and 150 topics of free online tutorials are provided by leading video training developers. You should also review the Apple ProRes 422 white paper, which you can download from: <http://www.apple.com/finalcutstudio/finalcutpro/apple-prores.html>. While the trainer exam includes questions from these tutorials and the whitepaper, the end user exam does not cover this.

Preparing the Classroom

This section provides details about minimum classroom requirements for hosting the *Motion 101: Introduction to Motion 4* course.

The Apple Authorized Training Center (AATC) is responsible for the following: (1) providing all hardware and software described in this section; (2) providing room, network, and projection system setup; and (3) installing the software and course materials before the first day of class. If the minimum requirements outlined are not met, it may be impossible to meet certain course objectives.

Ideally the AATC will allow one day before the start of class for setting up, configuring, and testing the classroom equipment. Additionally, the instructor may need to access the classroom 24 hours before the start of class, and may need after-hours or weekend access throughout the training event.

To ensure maximum system compatibility at your onsite location, we encourage you to discuss the specific hardware and software that you will use for the training course with your AATC.

Classroom requirements

- A workspace for the instructor and for each student. The instructor’s workspace should be at the front of the classroom and include internet access. Each student workspace should accommodate a single computer with workstation-style seating.
- Power outlets for all computers, monitors, and peripheral devices with approximately 5 amps of power for each device used in the class
- A projection screen, as specified in “Projection System” section, at the front of the classroom and at a reasonable distance from the students

- A wall-mounted or freestanding whiteboard (with dry-erase markers and erasers) at the front of the classroom
- Adjustable lighting and temperature controls

Projection System

- The projection equipment must be on a sturdy table or stand, or ceiling-mounted. Access to a spare bulb or backup projector is recommended. Minimum requirements for the projection system are as follows:
 - Resolution of 1024 x 768 pixels at 75 Hz
 - Projection rating of at least 2000 lumens
 - Projection screen at least 6 feet x 6 feet
 - Mirrored instructor's system

Minimum student system requirements

- Macintosh computer with the latest version of Final Cut Studio. The computer must be fully supported for Motion 4, in accordance with the specifications at <http://www.apple.com/finalcutstudio/specs/>.
- Minimum of Mac OS X v10.6 or later installed (use the Erase install option; do not customize the installation)
- A single display with 1680 x 1050 or higher resolution.
- Required course materials from the book Apple Pro Training Series: "Motion 4" by Mark Spencer.
- Appropriate disk space to install Motion and any optional templates, content, tutorials and media. Disk space varies depending on the application. This information is provided in the Tech Specs.
- Standard headphones.
- Each student will need a computer with internet access to take the associated Certification exam. Ideally the Student systems would include internet access. However, any Macintosh or Windows system can be used to administer the exam. This class prepares students to take the Level One End User exam.

Minimum instructor requirements

The instructor system includes a computer to demonstrate Motion. Because systems may be re-imaged before the start of class, provide only systems with hard drives that can be erased. The instructor system must meet the same requirements as the student systems, with the following additions:

- A Mac OS X-compatible inkjet or laser printer with appropriate interface cable
- Video output for connection to projector
- Speakers
- Internet access to administer the associated certification exam

Files required for the class

All projects and media required for the class are contained in the corresponding Lessons and Media folders on the included DVD. The media is a combination of files in the QuickTime and AIFF formats. The media files are organized into folders within the Media folder that is stored within the Motion4_Book_Files folder. The Project files are organized within the Lessons folder that is also stored within the Motion4_Book_Files folder. The students will access the project files from the Finder, and the media files from Motion's File Browser.

- Lesson 1: Getting Around in Motion, Lesson Files – none, start with a new project (however, the Lesson_01 folder contains “catch-up” projects that are referred to in the book), Media Files – Into folder
- Lesson 2: Building a Composite, Lesson Files – none, start with a new project, Media Files – Rockumentary folder
- Lesson 3: Working with Templates, Lesson Files – none, start with a new project, Media Files – Cars folder
- Lesson 4: Using Motion with Final Cut Pro, Lesson Files – Lesson_04 folder, Media Files – Pipeline folder
- Lesson 5: Sharing Your Project, Lesson Files – Lesson_05 folder, Media Files – Pipeline folder
- Lesson 6: Creating Animation with Behaviors, Lesson Files – Lesson_06 folder, Media Files – Rockumentary-behaviors folder, Stage folder
- Lesson 7: Animating with Keyframes, Lesson Files – Lesson_07 folder, Media Files – Rockumentary folder
- Lesson 8: Creating Content with Generators, Shapes, and Paint Strokes, Lesson Files - Lesson_08 folder, Media Files – Secret Agent folder
- Lesson 9: Creating Text Effects, Lesson Files – Lesson_09 folder, Media Files – Secret Agent folder
- Lesson 10: Working with Particle Emitters and Replicators, Lesson Files – Lesson_10 folder, Media Files – Rockumentary-behaviors and Secret Agent folders
- Lesson 11: Using Audio, Lesson Files – Lesson_11 folder, Media Files – Rockumentary folder
- Lesson 12: Speed Changes and Optical Flow, Lesson Files – Lesson_12 folder, Media Files – Pipeline folder
- Lesson 13: Stabilizing and Tracking, Lesson Files – Lesson_13 folder, Media Files – Traitor folder
- Lesson 14: Keying, Lesson Files – Lesson_14 folder, Media Files – Keying folder
- Lesson 15: Building a 3D Scene, Lesson Files – Lesson_15 folder, Media Files – Pipeline folder
- Lesson 16: Animating Cameras and Using Advanced 3D Features, Lesson Files – Lesson_16 folder, Media Files – Pipeline and Rockumentary-behaviors folders

Preparing the student desktops before class

ACTs should complete the following steps to prepare the systems before class:

- After powering on each student system, make an alias of the application and place it on the desktop or in the dock.
- Be sure to familiarize yourself with the media and projects before teaching the class. You will need to know the material well for demonstrations and exercises.
- Keep backup copies of the lessons on a hard drive in order to restore files quickly if necessary.
- You can also lock the project files so the students will save copies to their own desktop folder.

Essential teaching information

The following information will help you to teach the *Motion 101: Introduction to Motion* course.

Course structure

The book is divided into five sections. Each section progresses the student further along learning Motion's interface and toolset as they build projects. While some students will be familiar with the different aspects of creating motion graphics and visual effects, many will not. So it's important to make sure the class is comfortable with the general concept of what they're doing in each section—before they begin learning specific Motion functions.

Section 1: Lessons 1-5, "Fundamentals"

This first section provides a comprehensive introduction to the Motion interface, how to build composites in Motion, how to work with Motion and Final Cut Pro together, and how to share a completed project. It is designed to be completed on the first day.

Section 2: Lessons 6-7, "Animation"

Now that the students are grounded Motion's UI and workflow, they begin to explore different ways of creating animation - first by using behaviors, and then keyframes. For some students, the concept of keyframing will be brand new while others may be used to using keyframes in other applications. This section is designed to be completed the morning of the second day.

Section 3: Lessons 8-11, "Motion Graphics Design"

With basic animation principles covered, this section focuses on design. Students build projects as they are introduced to more of Motion's tools and objects, including generators, shapes, the Paint Stroke tool, the Text tool and text behaviors, particle emitters, replicators, and tools for

working with audio. This section is designed to be completed the afternoon of the second day.

Section 4: Lessons 12-14, “Visual Effects Design”

In this section, students once again build projects, but with a focus on the tools and techniques for create a variety of visual effects for video, including making speed changes, tracking, and keying footage. This section is designed to be completed the morning of the third day.

Section 5: Lessons 15-16, “An Introduction to 3D”

In this last section students are introduced to Motion’s 3D toolset: they build a simple 3D scene, learn how to work with and animate cameras, and explore Motion’s advanced 3D features such as reflections, shadows, and depth of field. This section is designed to be completed the afternoon of the third day.

Reinforcing course lessons

To help students master the course material, you need to provide sufficient reinforcement. Showing something once or twice might not be enough for all students. Reinforcing the material better prepares them to complete the exercises and pass the certification exam. To reinforce students’ learning:

- Summarize the topics you’ve covered after you complete each lesson.
- Use real world examples during explanations of concepts.
- Ask questions to help gauge their level of comprehension.
- Where applicable, ask students to apply their knowledge to a practical situation.
- At the end of each lesson, give students a few minutes to complete the review questions on their own, then review them as a group. Make sure all students participate and understand the material. The review questions are strictly for self-assessment; explain that you will not grade them. However, the review questions set expectations for topics covered in the Level One end user certification exam. This is one way to discover if any student is falling behind.

Many instructors have also found it useful to review the questions after lunch or at the beginning of the next day. If you do this, you should not do this instead of going over the questions after your presentation, but in addition to the presentation. Going over the review questions immediately following a lesson gives students a valuable opportunity to reinforce information they just heard. Going over review questions at a later time is a valuable test of how much the student retains the information; at this point the student will often have a much better understanding of what they’ve learned.

If you don’t have time to go over the review questions in class, suggest that students go over them by themselves during break or at the end of the day. If there are any answers they don’t know, they should review the appropriate material in the book before the next day.

Using the exercises

Simply put the main challenge is... TIME! Everyone's classes are organized a little differently, depending on the skill level and number of students. In addition, instructors have unique teaching styles. You must make it a priority to create a system that allows you the time to cover the entire book so that you adequately prepare students to take the Level One certification exam.

It is very important to use proper terminology when discussing Motion with your class. Using incorrect terms can lead to confusion, and potentially cause students to not understand certification test questions.

The book often indicates available keyboard shortcuts. It is very important to emphasize that most shortcuts can be re-programmed, therefore students should always know where a feature can be accessed if the expected keyboard command is not available. Since many students will also be using or learning to use Final Cut Pro, consider pointing out keyboard shortcuts that are the same for both Final Cut Pro and Motion.

Working with this instructor guide

The categories of page comments are marked with icons so that they quickly convey the type of information they are intended to give.



Teaching Strategies give you helpful hints on how to approach teaching a particular concept, and how to maximize your use of time.



Teacher Tips represent information that you the teacher can give to the students. This information is not discussed in the book, but may be of interest to your class.



Technical Concerns give you an awareness of potential technical issues that could pose a problem when teaching your class. This includes compatibility issues, software version changes, or incorrect information in the book.

Motion 101 Agenda

Motion 101: An Introduction to Motion course is a three-day class that covers all lessons from the book. This course completely prepares students to take the Motion Level One certification exam.

Day 1

Introduction

Beginnings are important; research suggests that learners make lasting judgments about their trainers in the first half-minute of classroom interaction—judgments that substantially predict their evaluation of their trainers and their learning experience.

Open the class by welcoming the students and providing brief information about the class schedule and logistics. Conduct brief introductions (including yourself).

Before the lessons begin, survey the students to gauge their skill levels in the following areas:

- Their knowledge of the Macintosh platform
- Their knowledge of motion graphics and workflow
- Other media experience (for example, editing, graphic design, creating DVDs, working with 3D or audio)
- Their familiarity with complementary software such as Photoshop or After Effects.
- Ask whether students already own or work with Final Cut Studio, and which version. Ask which applications interest them most.
- Ask students how they plan to use Motion. This information will help you plan what to emphasize and de-emphasize in the course, and help you to identify students who may experience problems completing the exercises.
- Ask students if they use After Effects. If you are familiar with After Effects, consider pointing out places where Motion works differently as you teach concepts to help them get comfortable.
- Ask students their goals for the class.

After surveying the students, complete the following:

- Take attendance and hand out the class materials. Each student should receive a copy of the Apple Training Series book.
- Explain that students should follow you on their computers one step at a time. This is useful when you first introduce a new section of the software. It is also very helpful in lessons that can create changes that are difficult to reverse. It is imperative to emphasize that students should not do anything on their computers until asked, otherwise you may have to waste time fixing their mistakes.
- Explain to the students that after completing the course, they should be prepared to take the Level One Certification exam. Ask how many students plan to take the certification exam.
- Provide a brief overview of the top features. See the next section for details.

Provide a Motion Overview

Since many students could be new to the latest version of Final Cut Studio, it is helpful to begin with an overview of the top new features and advantages. The information that you gathered when you surveyed the students should help to guide you as to how much information will be appropriate. You can find a Keynote presentation that describes the new features on ASW at part number [L392199A-US](#). Please keep in mind that the Keynote presentation is a very marketing-oriented, not training-oriented presentation.

Note that many lessons pick up where a prior lesson left off. However, a fresh project file is always supplied for the students to open and we highly recommend that you start each lesson with this supplied project file rather than having the students continue with their own project file.

Although the book suggests saving each project to a “Student Saves” folder, I often ask the students to create a single folder on their desktop to contain all projects and other assets that they create during the class. This approach makes it easier to find and delete student files after the class for those classrooms not re-imaging the machines.

Section 1: Fundamentals

Lesson 1: Getting Around in Motion (estimated completion time: 60 minutes)

Upon completion of Lesson 1, students should be comfortable performing the following tasks:

- Create a new project
- Navigate the Motion interface
- Add video to a project
- Duplicate elements
- Set a play range
- Make transformations
- Add and modify effects
- Apply blend modes
- Use Library content
- Create and animate text

In this first lesson, students will build a simple project from scratch. The idea is for them to learn the interface while building a real project, and getting experience with key concepts and workflows such as importing assets, making transformations, using the Library, and adding effects: filters, behaviors, and masks.



Teacher Strategy: Everything students do in this lesson will be covered in more detail later. So they don't need to understand absolutely everything they do here - the goal is to have some fun and get some immediate sense of accomplishment.



Technical Concern: When animating the mask on the video with Throw and Spin behaviors, use a very small amount of animation to avoid revealing the edge of the video. Focus on Motion's real-time performance, simple UI, and vast Library of material.

Lesson 2: Building a Composite (estimated completion time: 90 minutes)

Now that the students have had an overview of the Motion UI and workflow, they will build a more complex project. The teaching approach is to separate compositing from animating in order to focus on the process of building a composite image. Animation will come in later chapters.

The project used in Lesson 2 is a DVD motion menu that you will return to several times throughout the book called “Pale Divine”. In this lesson, students are building the composite menu image. Later, they will animate the composite and add to the project to build a full DVD motion menu.

Upon completion of Lesson 2, students should be comfortable performing the following tasks:

- Apply blend modes and combine with filters
- Import layered Photoshop files
- Copy layers and filters
- Expand image sequences
- Perform Timeline edits
- Change preferences
- Make clone layers
- Transform and add masks to groups



Teacher Strategy: The exact placement, rotation, and scaling of layers and choice of blend modes and colors are not critical but are supplied to match the images in the book. Once you are familiar with the project, you can allow students creative freedom for their own composites, which makes the compositing process more personal and engaging than a “color by number” approach.



Technical Concern: Page 69, step 13: students will need to first select the layer (the filter is currently selected) before being able to adjust the opacity of the layer.



Technical Concern: Page 80, step 13: the step suggests either dragging a marquee or Shift-selecting, but only Shift-selecting will work.



Technical Concern: Page 81, step 16: after this step, have the students go back into Motion > Preferences and reset the default layer duration to “Use project duration” - otherwise, new layers added in following projects will still be only one second long.

Lesson 3: Working with Templates (estimated completion time: 30 minutes)

After the first two lessons which involve a lot of new concepts and many steps, this lesson is shorter and easier lesson that you can have a lot of fun with.



Teacher Strategy: Depending on how much time you have, you can dive into the other templates and let the students explore.

Upon completion of Lesson 3, students should be comfortable performing the following tasks:

- Browse and select templates
- Use drop zones
- Modify templates
- Convert projects into templates
- Use master templates in Final Cut Pro



Technical Concern: Page 102, Step 9: the hard edge on the video is solved in the book by using a mask, but it can also be solved by resetting the Crop parameter in the Inspector. Since the students were already introduced to the mask concept in the first chapter, resetting the crop parameter is a reasonable alternative and will save you a few steps.



Technical Concern: Page 106, Step 6: converting the video to a Drop Zone shrinks the video, which is a bug. To avoid the bug and the steps the book goes through to fix it (by resizing the video), you can change the Fit parameter to a different setting and then back again before converting to a Drop Zone and the layer should stay the correct size.

Lesson 4: Using Motion with Final Cut Pro (estimated completion time: 90 minutes)

It's likely that many of your students are also editing with Final Cut Pro - or plan to do so. This chapter covers the workflow for moving between Final Cut Pro and Motion.

Upon completion of Lesson 4, students should be comfortable performing the following tasks:

- Understand application integration
- Send clips from Final Cut Pro to Motion
- Animate graphics in 3D using behaviors
- Use and modify Library content
- Update Motion projects embedded in Final Cut Pro
- Understand which elements are retained when sending clips from FCP to Motion
- Reconstruct Final Cut Pro effects in Motion
- Speed up workflow using multiple selections and keyboard shortcuts



Teacher Strategy: If you are pressed for time, you can cut down on the amount of work you do in Motion to focus on the workflow of moving between the applications. For example, you could skip adding the 3D spin effect on page 126 and the animated drawing on page 130. When sending multiple clips, you could skip the animation steps starting on page 152.

Lesson 5: Sharing Your Project (estimated completion time: 30 minutes)

Now that students have learned how to get content into Motion, either directly or from Final Cut Pro, and how to use Motion to build a couple of projects, this lesson explains how they get their work out of Motion in order to share it with others. It's an easier lesson with which to end the first day. Note that the chapter takes a broad view of the concept of sharing by including ways of saving project components for later reuse or sharing with other Motion users.

Upon completion of Lesson 5, students should be comfortable performing the following tasks:

- Export a project
- Create a custom export preset
- Share a project with specific devices
- Modify a Share output in Compressor
- Save effects, layers, and groups as favorites
- Apply saved favorites
- Share project components.

Section 2: Animation

Lesson 6: Creating Animation with Behaviors (estimated completion time: 60 minutes)

Lesson 6 and 7 cover how to create animation in Motion. Lesson 6 focuses on Behaviors, and 7 on keyframes.

Lesson 6 returns to the Pale Divine DVD menu project, where students build the opening animation. They will build this same opening several different times throughout the class, using different techniques each time. The focus here is on behaviors, and they will use a couple of approaches to create animation with behaviors.

The second half of the lesson introduces parameter behaviors with the “gears” project, and serves as a bridge to the keyframing chapter.

Upon completion of Lesson 6, students should be comfortable performing the following tasks:

- Create animation with basic motion behaviors
- Adjust, copy, and trim behaviors
- Use Simulation behaviors
- Apply Parameter behaviors
- Clone animated groups
- Compare animation with behaviors and keyframes



Teaching Strategy: Before cloning the gears, consider duplicating the group, position the duplicate gears to mesh with the original gears. Then

show how turning off the Rate parameter behavior in the original group does not stop the rotation in the duplicate because the duplicate contains its own, independent copy of the behaviors. By performing these steps, you make clear the difference between a duplicate and a clone.

Lesson 7: Animating with Keyframes (estimated completion time: 90 minutes)

This lesson starts where Lesson 6 left off, working with the same project but using keyframes instead of behaviors to demonstrate the benefits of each. It then returns to the Pale Divine DVD project, this time so that the students can animate the composite they created in Lesson 2 with keyframes.

Upon completion of Lesson 7, students should be comfortable performing the following tasks:

- Record keyframes
- Set keyframes manually
- Use the Keyframe Editor
- Change keyframe interpolation and adjust keyframe curves
- Add, move, and change the values of keyframes on a curve
- Set keyframes for multiple layers simultaneously
- Change keyframe timing in the Timeline
- Choose keyframe curves for editing in the Keyframe Editor



Technical Concern: Page 235, step 2: the screenshot doesn't show where the "Fit visible curves in window" button is located. It's at the bottom-left corner of the Keyframe Editor, third button from the left.

Section 3: Motion Graphics Design

Lesson 8: Creating Content with Generators, Shapes, and Paint Strokes (estimated completion time: 90 minutes)

The next three chapters focus on motion graphics design, and they introduce the bulk of the remaining objects and tools as students build projects. In Lesson 8, students work with a partially completed project which they will complete over the course of lessons 8 and 9. Using a partially completed project allows the students to dive straight into new concepts and also helps them learn how to break down a project.

Upon completion of Lesson 8, students should be comfortable performing the following tasks:

- Inspect project properties
- Extend video layers with hold frames
- Understand rasterization
- Align layers and keyframes to markers

- Apply, adjust, filter, and animate generators
- Use shapes
- Work with paint strokes

Lesson 9: Creating Text Effects (estimated completion time: 45 minutes)

Picking up where Lesson 8 ended, students now add, style, and animate text for the same project to complete it.

Upon completion of Lesson 9, students should be comfortable performing the following tasks:

- Create, format, and style text layers
- Format glyphs
- Save and apply text style presets
- Animate text with behaviors
- Customize the Sequence Text behavior
- Animate glyphs
- Save text animation favorites
- Work with motion blur



Teacher Strategy: A key concept for students to grasp is the difference between the Adjust Glyph Tool and the Adjust Item Tool - the first allows you to transform a glyph, while the second creates animation on those transformation. Be sure to emphasize this difference.



Teacher Strategy: When introducing paint strokes, consider opening a new, blank project so that students can explore the tool and the presets before returning to the current project - the empty canvas allows for more experimentation and better playback performance.

Lesson 10: Working with Particle Emitters and Replicators (estimated completion time: 60 minutes)

This chapter uses the Pale Divine project to introduce particle emitters: students use an emitter to recreate the opening animation that they created with behaviors earlier to see the benefits of this approach.

To introduce replicators, the students change the opening of the “Are You Prepared” project that they built in Lessons 8 and 9.

Upon completion of Lesson 10, students should be comfortable performing the following tasks:

- Create and modify a particle emitter
- Use an image sequence as a cell source
- Browse, apply, and customize preset emitters and replicators
- Create and modify a replicator



Technical Concern: Students may need to stop playback in order to type specific values in the value fields in the Inspector.



Technical Concern: Page 335, step 10: should read, “In the Particle Cell tab, use the Cell Control...” instead of “In the Emitter tab..” Explain to students that once you have more than one cell in an emitter, the controls no longer appear on the Emitter tab.



Teacher Strategy: For both emitters and replicators, consider opening a “side” project to allow students to play with the presets in the Library in an empty canvas.



Teacher Strategy: Emitters and replicators are introduced together to make it easier to point out the similarities (in structure and parameters) and differences (in results) - so take the opportunity to compare and contrast them.



Teacher Strategy: Consider skipping “Adding Cells” starting on page 333 if you are running short on time. You could also skip “Using Emitters from the Library” starting on page 336, but be sure to at least show the particle presets and encourage students to explore them on their own. You could also skip “Modifying Replicator Presets” starting on page 346, but again, show the presets and encourage exploration.

Lesson 11: Using Audio (estimated completion time: 45 minutes)

This chapter introduces students to several different ways they can work with audio in Motion and builds on previous concepts such as behaviors, keyframes, markers, and editing.

In this lesson, students assemble the 3 different sections of the Pale Divine project they have been working on in prior lessons into one master project. Rather than using their own saved versions, use the supplied projects that the book refers to to ensure consistent results.

Upon completion of Lesson 11, students should be comfortable performing the following tasks:

- Work with audio in the Project pane, Audio Editor, and Timeline
- Create project and layer markers
- Use keyframes and behaviors to automate audio levels
- Edit to the beat of an audio track
- Sync animation to audio with the Audio Parameter behavior



Technical Concern: When dragging Motion projects into the Timeline (starting on page 360), students may find it easier to drag them to the mini-Timeline instead of the Timeline, pressing Shift to snap to the markers (which appear as very faint lines in the mini-Timeline).



Technical Concern: It’s easy to accidentally drag one group inside another, so make sure student’s results look like the screenshots in the book.

Section 4: Visual Effects Design

Lesson 12: Speed Changes and Optical Flow (estimated completion time: 30 minutes)

The next three chapters explore visual effects and can be a lot of fun for students as they are simple projects with strong visual impact and are easy to experiment with. Lesson 12 covers different ways of making time-related changes to a video clip.

Upon completion of Lesson 12, students should be comfortable performing the following tasks:

- Speed up and slow down a video clip
- Apply optical flow frame blending
- Use keyframes to create a variable speed ramp
- Apply, trim, and combine Retiming behaviors
- Use and modify Time filters



Teacher Strategy: Give students a chance to experiment with the different retiming options after they have run the optical flow analysis and point out areas where it works well and it doesn't, and discuss types of shots that make good candidates for extreme slow motion (e.g., little or no camera panning). For example, examine the tearing on the tip of the surfboard at extremely slow speeds.

Lesson 13: Stabilizing and Tracking (estimated completion time: 60 minutes)

In this lesson students create a temporary visual effects shot for a feature film, using the same process used by the actual editor of the film.

Upon completion of Lesson 13, students should be comfortable performing the following tasks:

- Match project settings to footage
- Use shapes and masks to create a wide-screen matte
- Use markers to match shots
- Stabilize a shot
- Match-move one shot to another
- Create and animate a Bezier mask
- Combine masks
- Color-correct one shot to match another



Teacher Strategy: It can be difficult to get the effect to look “perfect” and you should emphasize that this is a “temp effect” created for timing purposes and screenings that is meant to be replaced. Explain how different the two shots are and why it is challenging to match them exactly.

Lesson 14: Keying (estimated completion time: 30 minutes)

This is a fun, easy chapter that introduces keying a greenscreen shot.

Upon completion of Lesson 14, students should be comfortable performing the following tasks:

- Prepare a background plate
- Key a green screen shot
- Refine a green screen matte
- Create and animate a garbage matte
- Correct green screen spill
- Match luminance and color balance



Technical Concern: Page 428: there may not be any lines in the Histogram to indicate the luminance levels. This fact won't affect the student's ability to adjust the filter.

Section 5: An Introduction to 3D**Lesson 15: Building a 3D Scene (estimated completion time: 60 minutes)**

3D concepts have been sprinkled throughout lessons up to this point (e.g., using 3D behaviors, animating particles in 3D space). In this chapter, the full set of 3D tools are introduced as students arrange layers in 3D space.

Upon completion of Lesson 15, students should be comfortable performing the following tasks:

- Manipulate layers and groups in 3D space
- Add and manipulate a camera
- Enable and work with 3D Canvas overlays
- Build and transform 3D scenes
- Work with axis modes
- Use multiple viewports
- Use the Frame Object command
- Mix 2D and 3D groups



Teacher Strategy: Working in 3D can be challenging, so allow time for students new to these concepts to get oriented. Consider a short intro to the idea of three dimensions by using the classroom as an example, with axes for the world (the classroom), layers in the world (a student or object), and the camera (you can make yourself act as the camera).

**Lesson 16: Animating Cameras and Using Advanced 3D Features (estimated completion time: 90 minutes)**

This lesson starts with the project the students created in Lesson 15 (but again, they should open the book lesson rather than continue with their

own version). Students learn how to animate a camera through the scene using behaviors.

Then, students return one last time to the Pale Divine project to create the opening animation using a completely different approach by animating the camera with keyframes rather than the layers themselves.

The final project explores, briefly, how to turn on and work with reflections, lights, shadows, and depth of field.

Upon completion of Lesson 16, students should be comfortable performing the following tasks:

- Animate a camera with behaviors
- Animate a camera with keyframes
- Work with depth of field
- Turn on and adjust reflections
- Understand light types
- Work with casting and receiving shadows



Technical Concern: The advanced 3D features can impact screen redraw performance so allow for some time for screens to update.

End of day wrap-up

Ask students to complete the course evaluation at <http://aatcportal.apple.com/eval/new>.

Explain benefits of certification and administer certification exam (see the next sections for details).

About the Motion Level One exam

Depending on the Apple Authorized Training Center where you teach, you may administer the Motion Level One exam on the afternoon of the last day or students may opt to take the exam at a later date after they have a chance to review what they have learned.

The Motion Level One certification exam includes approximately 80 questions. The Motion exam is timed. Students are allowed two hours to complete the exam. Students will not see the answers and explanations when they finish the certification exam. Their exam results will be available immediately after completing the exam. Students must earn a score of 80 or better to pass the end user exam.

The benefits of Apple certification

The Apple Certified Pro Training and Certification programs are designed to keep students at the forefront of Apple's digital media technology. Certification creates a benchmark for assessing proficiency in a specific Apple Pro application. By taking and passing the Apple Certified Pro exam, students will receive Apple Certified Pro status, which allows them to distinguish themselves to colleagues, employers, and prospective clients as

a skilled user of the chosen software application. This certification gives you a competitive edge in today's ever-changing job market. ACTs should actively encourage students to take the certification exam.

What is an Apple Certified Pro?

An Apple Certified Pro is a certified user who has reached the highest skill level in the use and operation of Apple's Pro Applications as attested to by Apple. Students earn certification by passing the online certification exam administered only at Apple Authorized Training Centers (AATCs).

Level One exams do not require attendance at a class. Students who prefer to learn on their own or who already have the necessary skill set in the chosen application, may register to take the Level One exam at an Apple Authorized Training Center for a fee.

Level Two exams can only be taken after someone has earned Level One certification. Students must first pass the Level One exam before taking the associated exam. The Level Two exams are advanced exams. Currently, Motion only offers Level One certification.

What are the benefits of being an Apple Certified Pro?

Apple Certified Pros are recognized as a highly skilled user of the chosen application. This allows students to differentiate themselves to employers and colleagues as a Certified Pro to promote career growth. Students will receive a certificate from Apple and will have the right to use the Apple Certified Pro logo on their business cards or website. This allows them to leverage the power of the Apple brand.

Once students pass their exam, Apple's certificate vendor ALOM emails PDF certificates within two business days of earning certification. The emails include an option to purchase printed or printed and framed certificates, a feature that many students requested. If a certificate is damaged, ask students to notify mycertificate@alom.com.

As Apple Certified Pros, students are allowed to list their certifications on the [Apple Certified Professionals Registry](#) which replaces the Apple Certified Pro Listing. Existing links redirect to the new Registry. If a student's listings are already published, they automatically appear in the new Registry. If they are not already published, they need to opt in by logging into the [Apple Certification Records System](#) and clicking the **Update my Personal Info** link.

If students have a certification issue, they should log into the new site at i7lp.integral7.com/apple and file a New Incident instead of emailing applecert@apple.com.

Preparing for the exam

The Apple Pro Training Series title is designed to prepare students to pass the certification exam. Reviewing the book is the first place to begin to prepare to take the certification exam. Students should make sure that they can complete all the goals that are listed at the beginning of each chapter. They should also make sure that they can answer all the review questions for each section.

The major keys to preparing for a certification exam are experience with the application and reviewing the appropriate training materials. The following resources may also help students to prepare for the certification exam, as well as expand their general knowledge:

- To help prepare for the certification exam, students can review the tutorials at www.apple.com/finalcutstudio/resources/. Over five hours of free tutorials are provided by leading video training developers, including some lessons from the Apple Pro Training Series book.
- Review the appropriate sections of the Motion User Manuals. The complete documentation for the entire studio is available at: documentation.apple.com. It's free, fully-searchable, and fully-linkable. You can also launch the Motion documentation by choosing **Help > Motion Manual** or **Help > New Features** when Motion is launched.
- Many online resources allow students to ask questions and learn tips and tricks. To access white papers, discussion forums, and learn about the many other online materials, visit Apple's training resources www.apple.com/finalcutstudio/resources/
 - To provide feedback to Apple about Motion, visit <http://www.apple.com/feedback/motion.html>.
 - Read the late breaking news at www.apple.com/support/manuals/.
 - Many third-party manufacturers create reference, troubleshooting and tutorial DVDs for the novice to power user. A quick Internet search will provide dozens of options.

Setting Up for an Exam

Classroom computers must be set up so that students are only able to access the exam that they are taking. They should not be able to use any other applications or visit any other webpages.

There are two easy ways to set this up:

[Create a new User](#)

[Run the Exam User Setup script](#)

Create a New User

Before administering an exam, you should set up a new user account on all computers in the testing room. This account should be set up using the Simple Finder, and should have [Parental Controls](#) enabled, so that only Safari can be opened. (Safari is the only browser supported by PRIME IBT.)

In Safari, delete the default websites included in the new account, and add these bookmarks instead:

- PRIME Test Engine: ibt.prometric.com
- PRIME Username Recovery: ibt1.prometric.com/recover.asp
- Apple Certifications System: i7lp.integral7.com/apple

Run the Exam Setup Script

The Training & Certification team has created a script that will create an Exam User account for you. You may download this installer from ASW at [part number L396861A-US](#). The User Account is called “Test User;” it does not require a password.

Once the package is installed, you can customize the account as you want.

Administering the Exam

Instructions for how to administer exams appear on ASW at [Exam Guide for ACTs, AATCs and Proctors](#).

Final Class wrap up

About 20 minutes before the class ends, ask for any questions, and review what you covered in the class.

Students must fill out class evaluations online before they leave. Having students complete the information at <http://aatcportal.apple.com/eval/new> is critical for Apple to understand perceptions of our courses and provide improvements when possible. Stress that the evaluations can be anonymous.

Hand out certificates. Apple provides a Certificate of Achievement for all students who complete a Pro Apps course. Every student who completes a class at your AATC should receive a certificate. You should not alter the certificate other than adding the class name and student information. The template is available on ASW at <https://asw.apple.com/cgi-bin/WebObjects/ASWviewer.woa/wa/display?id=L330196A-US>.

Post-class cleanup

Cleaning up a system after a class requires the deletion or replacement of the Lessons folder. Final Cut Pro will revert back to using the Library in Users/Pictures upon the next launch of the Application.