
PENNSSTATE



Taking Underwater Pictures with a GoPro Hero 2

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About this GoPro Learning Module

Taking Underwater Pictures with a GoPro Hero 2 was created by Zach Lonsinger at Penn State University. The analysis, design, and development occurred during the fall 2014 semester in INSYS 415A.

How this GoPro Learning Module is structured

The course overview

The course overview gives you a general introduction to the course. Information contained in the course overview will help you determine:

- If the course is suitable for you.
- What you will already need to know.
- What you can expect from the course.
- How much time you will need to invest to complete the course.

The overview also provides guidance on:

- Study skills.
- Where to get help.
- Course assignments and assessments.
- Activity icons.
- Units.

We strongly recommend that you read the overview *carefully* before starting your study.

The course content

The course is broken down into units. Each unit comprises:

- An introduction to the unit content.
- Unit outcomes.
- New terminology.
- Core content of the unit with a variety of learning activities.
- A unit summary.
- Assignments and/or assessments, as applicable.

Resources

For those interested in learning more on this subject, we provide you with a list of additional resources in the Course Overview of this GoPro Learning Module.

Your comments

After completing Taking Underwater Pictures with a GoPro Hero 2, we would appreciate it if you would take a few moments to give us your feedback on any aspect of this course. Your feedback might include comments on:

- Course content and structure.
- Course reading materials and resources.
- Course assignments.
- Course assessments.
- Course duration.
- Course support (assigned tutors, technical help, etc.)

Your constructive feedback will help us to improve and enhance this course.

Course overview

Welcome to Taking Underwater Pictures with a GoPro Hero 2

The GoPro camera is a small, versatile camera that is used to capture hi-definition photo and video. It was designed by a surfer for surfers. It then became widely popular in extreme action sports and within the past year or two, has become even more popular and mainstream in everyday life. It can be used for nearly anything. There is even a dog harness to capture a dog's perspective. Very cool. To learn more about GoPro, check out this promo video shot entirely on the GoPro Hero 2:

<https://www.youtube.com/watch?v=GUEZCxBeM78>

Taking Underwater Pictures with a GoPro Hero 2—is this course for you?

This course is intended for people who desire to take amazing selfies. That being said, these amazing selfies will be taken underwater. Anyone desiring to learn how to use a GoPro camera to take underwater selfies will be interested in taking this course..

Before taking this course, you should own a GoPro camera and be comfortable in a body of water. If you aren't comfortable in water or don't know how to swim, why would you want to take an underwater selfie? Go take swim lessons.

Course outcomes



Outcomes

Upon completion of this GoPro Learning Module, you will be able to:

- *set up and operate* a gopro camera.
- *navigate* the main menu and settings.
- *secure* the gopro camera in waterproof housing.
- *explain* what time lapse photography is.

Timeframe



How long?

Each unit should take no more than 15 minutes. Some units will only take about 3-5 minutes.

This is a self-paced learning module. You may take as much time as needed and revisit any unit as many times as needed.

Resources



- <http://gopro.com/support/>
- <https://www.youtube.com/watch?v=XIpgI0CBPXM>

The “GoPro How To: Start Using Your HD Hero2 Camera” YouTube video is a great resource on in supplement to this learning module.

- <http://en.wikipedia.org/wiki/GoPro>
This is Wikipedia page for GoPro.
- <https://www.youtube.com/watch?v=3luc-03ZJuU>
GoPro Dubstep Baby – Super Bowl Commercial 2013
- <http://www.learntimelapse.com/>

Need help?



Help

GoPro has a fantastic online support community. If you need additional help or would like to explore more with the GoPro camera, go here: <http://gopro.com/support/>

This is a self-paced course. There is no instructor. However, this course was developed and designed by Zach Lonsinger and he is always willing to help a fellow GoPro user. The easiest way to contact Zach is via twitter. His handle is @zachlonsinger.

Assignments



Assignments

There are no real assignments per se in this course. All of the assignment will mainly be practicing what you learned in that lesson with your GoPro Hero camera. You can choose to practice with your camera, or continue on to the next lesson.

Assessments



Assessments

There is one assessment that is included with this learning module. Through each unit, you will be asked to complete a specific question or set of questions related to that unit. By the end of this module, you will have completed the entire test.

There is also a self checklist that you can use, if you choose to, through the course. It can be used to track your steps in setting up and using the GoPro camera.

















The assessment and checklist are materials developed for you. They will not be graded or checked. They are for your reference and you may choose to complete them or ignore them.

Getting around this GoPro Learning Module

Margin icons

While working through this GoPro Learning Module you will notice the frequent use of margin icons. These icons serve to “signpost” a particular piece of text, a new task or change in activity; they have been included to help you to find your way around this GoPro Learning Module.

A complete icon set is shown below. We suggest that you familiarize yourself with the icons and their meaning before starting your study.

			
Activity	Assessment	Assignment	Case study
			
Discussion	Group activity	Help	Note it!
			
Outcomes	Reading	Reflection	Study skills
			
Summary	Terminology	Time	Tip

Unit 1

How to Set Up and Operate a GoPro Camera

Introduction

In this first unit, you will familiarize yourself with the GoPro camera. You will learn how to set up and turn on your GoPro camera.

Upon completion of this unit you will be able to:



Outcomes

- *insert* a memory card the correct way.
- *explain* why it is important to insert the memory card the correct way.
- *turn* on the gopro camera.
- *differentiate* between the two buttons and their functions on the camera.
- *charge* the camera when needed.



Terminology

- Power Button:** Located on the front of the camera, this button is used to power on the camera and to cycle through modes and settings
- Shutter Button:** Located on the top of the camera, this is used to select a mode or setting and to start recording or capture a photo

Memory Card & Charging

It is very important to insert a memory card the correct way. To do this, hold the camera facing you. With the memory card logo and writing facing you too, slide the memory card into the camera until it clicks. This is difficult the first few times and you may need to use your fingernail. It is crucial that the memory card's logo and writing is facing you. If you attempt to insert the memory card the other way (with the writing and font away from you while the camera is facing you), it could damage inside the camera as well as scratch the memory card.

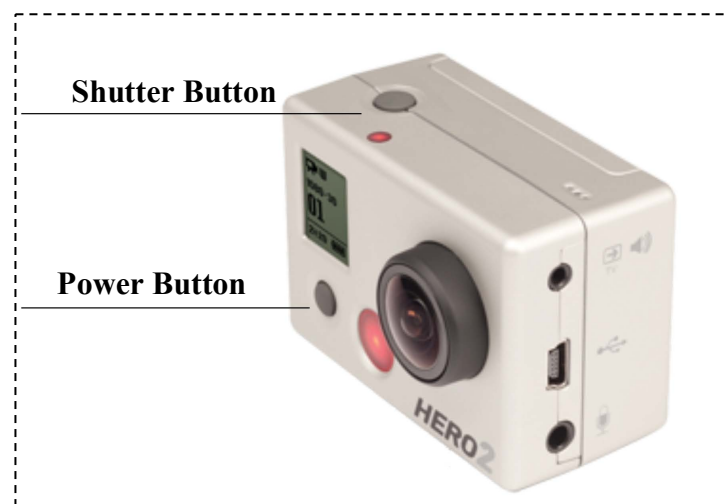
For charging the camera, we must first make sure the battery is secured in the back of the GoPro. To do this, remove the battery case by firmly pressing the bottom of the camera where there is a finger indent and pull. This will reveal the battery. If there is no battery, insert the battery that was provided with the camera. With the camera facing away from you, place the battery's left side in first so the three metal prongs are touching. Then push the rest of the battery in and place the battery cover back on. Attempt to turn on the camera by using the power button (refer to next lesson, GoPro Buttons and their Functions). If the camera turns on, great. You're done. If not, use the provided charging cable to charge the camera. Connect the GoPro to any computer via the USB cable.

If you would like to see any of this in action, please refer to the YouTube video mentioned in the Resource section above: [GoPro How To: Start Using Your HD Hero2 Camera](#)

GoPro Buttons and their Functions

There are two buttons located on the GoPro camera: the power button and the shutter button. As stated above, the power button is used to **TURN ON** the camera. It is also used to scroll through the modes and settings. The shutter button is used to initiate video recording, take a picture, or select a mode or setting.

Tip: Print this page and keep as a reference as long as needed.



Unit summary



Summary

In this unit you learned how to:

- Properly insert a memory card
- Insert and charge the battery
- Power on the camera
- Scroll and select

Assignment



Assignment

Your assignment for Unit 1 is to:

- Practice inserting and removing the memory card
- Practice powering on and off the GoPro camera
- Explore the GoPro menus using the “power” & “shutter” buttons

Assessment



Assessment

For Unit 1, complete the following:

- *Item Checklist* as you progress
- Section I, Questions 1 on the *Post Test*
- Section II, Questions 3 and 4 on the *Post Test*

Unit 2

Main Menu & Settings Menu

Introduction

Now that you have familiarized yourself with the camera and how it works, you will learn the two most used menus in the camera: the main menu and the settings menu.

Upon completion of this unit you will be able to:



Outcomes

- *name* each icon in the main menu.
- *name* each icon in the settings menu.
- *choose* the desired time interval in the settings menu
- *navigate* to the time-lapse mode in the main menu








Terminology

Main Menu:	This is the initial menu that is present when the camera is powered on.
Mode:	There are five modes on the GoPro Hero 2: video, photo burst, time-lapse, and settings.
Settings Menu:	This is the last mode and when selected, takes you to another menu where you are able to change the options of the other modes.
Time-lapse:	This is what we will be focusing on in Unit 4 and will be the main mode we will be working with in this module.
Time Lapse Modes:	This is a setting used for the time-lapse mode. This will be the main setting we will be working with in this unit and learning module.




Main Menu

Tip: Print this page and keep as a reference as long as needed.






Name	Icon	Description
Video		This mode will record video until manually stopped.
Photo		This mode will take a single photograph when the shutter button is pressed.
Burst		This mode will take several photographs in a very short time interval, as specified by the user.
Time-lapse		This mode will take one photograph every second (or however long is specified in the settings) until stopped.
Settings		This mode will take the user to another menu which will allow customization of each mode.

Settings Menu


Tip: Print this page and keep as a reference as long as needed.

Name	Icon	Description
Default Mode at Power Up		This allow the user to choose what the GoPro defaults to when the camera is turned on.
Video Resolution Modes		This allows the user to change the quality of the video recording mode. The user can change the size of the vidoe (1080p, 720p, etc.) and the FPS (frames per second: 60, 30, 24, etc.).
Field of View Modes		This allows the user to change the FOV, or field of view. This is how wide or narrow the picture or video will be. There are 3 settings to choose from: wide, medium, and narrow.

Tip: Print this page and keep as a reference as long as needed.

Photo Resolution Modes		This allows the user to change the quality and size of the photographs taken in photo mode. 11 MP (mega pixels) is the highest quality, and the smaller the number, the less quality you will have.
Time Lapse Modes		This is the mode we will be using in this module. You will use this mode to change the time intervals in between each photo taken in time-lapse mode. These options are: 0.5, 1, 2, 5, 10, 30, and 60 seconds.
One Button Mode		a.k.a. “fool proof mode” - One Button Mode essentially takes all the functionality out of your camera making it a simple, barebones recording device. Once you enable One Button Mode, your GoPro will automatically begin recording once you power it ON. Basically, there are no menus to scroll though, no worries about defaulting in the wrong mode, just power ON and record. Please note that once you're in One Button Mode, simply pressing the shutter button will be futile. The only way to get back to the SETTINGS menu to set your GoPro back to normal is to HOLD the shutter button for 3 seconds. This will immediately default to the SETTINGS menu and let you turn One Button Mode OFF.
More Menu Settings		This option takes the user to more settings. These more settings deal with camera maintenance, such as setting the time. If you would like to explore these settings, please see the GoPro Support website referenced in the beginning of this module.
Spot Meter Settings		This setting is more for the advanced user. I would avoid this until you feel more comfortable with the camera and the other basic settings. This is used essentially for controlling what the camera uses to automatically

Tip: Print this page and keep as a reference as long as needed.

		<p>set the exposure and aperture to control light. When this setting is on, whatever subject that is in the center of the fram will be used to set the exposure and aperture. To understand exposure and aperture, please refer to advanced settings on GoPro or photography forums.</p> <p>For our purposes, we will not be using this.</p>
<p>Upside Down Video/Image Modes</p>		<p>This is a super useful setting if you will be mounting your GoPro camera upside down. When on, your GoPro will think it's upside down, so when you turn your camera upside down, it actually films and takes pictures right side up.</p>

Unit summary



Summary

In this unit you learned the main menu modes and the settings menu icons. You will be able to effectively navigate these two menus now and understand what each icon represents.

Assignment



Assignment

Your assignment for Unit 2 is to:

- Explore and become accustomed to the main menu modes and setting options
- Practice navigating through the GoPro menus

Assessment



Assessment

For Unit 2, complete the following:

- *Item Checklist* as you progress
- Section III, Questions 7-20 on the *Post Test*

Unit 3

GoPro Backdoors & Housing and How to use them

Introduction

[Add introductory text here]

Upon completion of this unit you will be able to:

- *distinguish* between skeleton and waterproof backdoors.
- *secure* the gopro camera in waterproof housing.



Outcomes



Terminology

Skeleton backdoor:	A “door” without the need to be watertight or shockproof; opens the camera “housing”; has open sides for access to the camera ports; allows audio recording when the camera is used during low-speed activities; provides enhanced cooling.
Waterproof backdoor:	This is a sealed door that attaches to the camera housing and makes the housing waterproof and shockproof, but diminishes audio quality and has no access to the camera ports.
Housing:	The case for the GoPro camera.

GoPro Backdoors & Housing

Tip: Print these images and keep as a reference as long as needed.



Waterproof Housing (front)



Waterproof Housing (rear)



Skeleton Backdoor



Waterproof Backdoor

How to secure your GoPro

- 1.) Before you place the camera into the housing, make sure the inside of the housing is clean, especially around the seal area.
- 2.) Insert the camera into the case.
- 3.) Apply pressure to the rear door, while closing the clasp on the top of the housing.
- 4.) You'll hear a snap when the housing is completely sealed and closed.

For a visual demonstration, watch this video starting at 1:12.

<http://youtu.be/XIpgI0CBPXM?t=1m12s>

Unit summary



Summary

In this unit you learned the waterproof housing and the two most-used backdoors. You also learned how to secure the housing inside of the waterproof casing using the waterproof backdoor.

Assignment



Assignment

Your assignment for Unit 3 is to:

- Practice securing your GoPro camera in the housing

Assessment



Assessment

For Unit 3, complete the following:

- *Item Checklist* as you progress
- Section II, Questions 5 and 6 on the *Post Test*

Unit 4

Time Lapse Photography

Introduction

Time-lapse photography!?! What is it? How do I use it? Don't fear, these questions that will be answered in this unit!

Upon completion of this unit you will be able to:



Outcomes

- *explain* what time-lapse photography is.
- *adapt* the time-lapse feature to be used for underwater selfies.



Terminology

Time-lapse photography:

used to describe a way of filming something in which many photographs are taken over a long period of time and are shown quickly in a series so that a slow action (such as the opening of a flower bud) appears to happen quickly

What is time-lapse photography?

Time-lapse photography is a technique that is used to speed up time. It is a mix of film and photography, where photographs are taken at a specific time interval and then played back at a much faster frame rate. For example, an image of a sunrise may be captured once every second. This would be one frame. This then would be played back at 30 frames per second, or showing 30 images of the sunrise in 1 second, whereas we only one image per second was actually captured. When played at normal speed, time appears to be moving faster and thus lapsing.

Using time-lapse with your GoPro

Time-lapse mode is a very versatile mode with your GoPro. You can surely use it in the traditional sense, and set your GoPro up on a tripod. But what fun is that? For our purposes, we will use the time-lapse mode to take photographs at set intervals. Doing this will allow you to focus more on the activity at hand and less on remembering to capture the moment. You will not have to worry about pressing the shutter button to

take a picture. All you have to do is start this mode, and your GoPro will take pictures of you throughout the duration of your activity!

Unit summary



Summary

In this unit you learned what time-lapse photography is and how we can use it to our advantage to focus more on having fun and less on remembering to take pictures!

Assignment



Assignment

Your assignment for Unit 4 is to:

- Practice using time-lapse mode on your GoPro

Assessment



Assessment

For Unit 4, complete the following:

- *Item Checklist* as you progress
- Section I, Questions 2 on the *Post Test*
- Any remaining test questions.
- The provided assessment and checklist should now be completely done. Use these as future reference items.