How to Choose a Proper Lens?
Or:
Different Lenses for Different Purposes

This topic assumes that you already have an SLR or Mirrowless camera and you are comfortable with your camera's settings and its features. Please review "Photography 101" for tips on how to use your SLR camera before this lesson.

How to choose the proper focal length:

SLR or mirrorless cameras offer compatibility with various lenses, allowing photographers to choose options from the same manufacturer or other brands like Sigma, Tokina, Tamron, Zeiss, and more. Each lens comes with different features, but a primary consideration is whether it is compatible with full-frame cameras.

To understand the distinction between full-frame and crop-frame (or non-full-frame) cameras, it's important to consider the camera sensor, as the term 'frame' implies. Full-frame cameras feature sensors that are equivalent in size to traditional 35mm film, making them more expensive options.

Some examples of full-frame cameras include the Canon 1D, Canon 5D, Canon R6, Nikon D5, and Nikon 850. Cameras that are not full-frame come with smaller

sensors. The smaller sensor size causes the effective focal length of lenses to be multiplied by a factor such as 1.5, 1.4, or 1.6, depending on the camera model.

For instance, if you attach a 200mm zoom lens to a full-frame camera, the focal length remains 200mm. However, if you attach the same lens to a cropped-frame camera like the Canon 7D, the focal length becomes 200mm × 1.6 = 320mm. This doesn't necessarily have negative implications; it simply provides a different perspective. A crop sensor effectively gives you more zoom, which can be advantageous in certain situations.

While crop-frame cameras accept both types of lenses, full-frame cameras are more selective in their compatibility.

As an amateur photographer who enjoys taking photos for pleasure and occasionally selling them, it's essential to have a range of lenses covering various focal lengths, typically from 11mm to 200mm. As you delve deeper into more professional photography activities, your need for specialized lenses may increase.

For instance, in bird photography or astrophotography, you might find yourself requiring lenses with much longer focal lengths, such as around 800mm. These specialized lenses enable you to capture detailed images of distant subjects or celestial phenomena with precision and clarity.

Investing in a diverse range of lenses allows you to explore different genres of photography and expand your creative possibilities, catering to a broader range of subjects and scenes. As you grow in your photography journey, acquiring lenses tailored to your specific interests and pursuits can greatly enhance the quality and versatility of your photographic work.

Unfortunately, you cannot cover 11mm to 200mm with a single lens, this is why you need at least three lenses to cover the whole range. It could be:

1. **Canon 11-24mm F4 IS USM or Nikon AF-S 14-24mm f2.8**
2. **Canon EF 24-70mm f2.8L II USM or Nikon AF-S 24-70mm f2.8 E ED VR**
3. **Canon 70-200mm F2.8 IS USM IS or Nikon AF-S 70-200mm f2.8 E FL ED VR**

These are high-end lenses that cover the range from 11mm (14 in Nikon) to 200mm. Of course, there are cheaper lenses with the same specification that sometimes still offer similar quality.

Besides these zoom lenses (which means you can change the focal length from a min to a max) there are "**prime**" lenses. Prime lenses only provide you with a single focal length, which means you cannot zoom in or out, but they give you the best photo quality. In other words, you cannot adjust the framing by changing the zoom ring on your lens, instead, you have to move forward or backward to get the subject property framed in your camera.

Back to zoom lenses and their ranges, so, here is the question: When do I pick which lens?

The first group of lenses (11-24mm or 14-24mm) are wide lenses. This means you can include most of your scene in your photo without having to stand far away. They are ideal for real estate, landscape, and architecture photography. However, they are not recommended for portrait shots or photography of animals, such as birds, because subjects may appear tiny in the frame.

Pros and cons:

- Wide angle pros:
  - Focusing is usually faster and easier
  - They are lighter than other lenses (most of the time)
  - Depth of Field (DOP) is usually very deep (this one repeats under cons too, depending on what the purpose of photography is)
- Wide angle cons:
  - You have to get close to your subject if you want to capture tiny details
  - Depth of Field (DOP) is usually too deep (this one repeats under pros too, depending on what the purpose of photography is)
  - Distortion is more than other lenses (What is distortion? Simply, parallel lines could show up curvy and it happens more as you get closer to the edges of the photo.)
  - They are more expensive than mid-range zoom lenses

The second group of lenses (24-70mm) are called mid-range zoom or simply "zoom" lenses. These types of lenses are all-purpose lenses. They are the best for travel. Slightly covering 90% of what you need during a vacation kind of travel or even an adventure travel. Also, they are good for portrait photography. When it comes to landscape they are not as good as wide lenses but still cover a lot on their min focal length (24mm).

Pros and Cons:

- Mid-range zoom lens pros:
    - They cover a large range starting around 20mm to 100mm
    - During travel, they cover many different purposes, like portraits, architecture, landscape, events and so on
    - They are still fast enough when it comes to focusing
    - You do not have to keep changing the lens for different shots
    - They usually have a narrow Depth of Field which helps a lot with vivid subjects and blurry background
- Mid-range zoom lens cons:
    - They are heavy
    - They are bulky (bigger than prime lenses)
    - They provide you with a bigger aperture than prime lenses, or they are not as fast as prime lenses* (what is Fast Lens?)

The third group of lenses (70mm and more) are called Super Zoom or Telephoto lenses. These kinds of lenses allow you to take photos of small objects very far away from you. They are a fantastic choice for sport or event photography, animal photography, weddings and portrait shots. Also, they work great under low light conditions.

Pros and Cons:

- Zoom lens pros:
    - They cover a reasonable range starting around 70mm and more
    - You do not have to get too close to your subject in order to get the desired details
    - They are the best option for sport photography, bird photography and astrophotography
    - They give you a very nice shallow Depth of Field, making the background blurry. Very narrower than other groups of lenses

- Zoom lens cons:
    - They are very heavy. (when using a tripod or monopod make sure the lens is attached to the tripod not the camera)
    - They are bulky (bigger than any other lenses)
    - They are not as fast as other groups when it comes to focusing. That is why they have a switch to narrow down the focus area. (e.g. less than 1 m and full range.)

9 Tips to Remember:

- One single lens cannot cover all your photography needs
- As a beginner or amateur photographer, you need to cover the range (roughly) between 11mm to 200mm
- You need at least three lenses if you want to use professional lenses to cover the above-said range of 11 to 200 mm (One single lens with a huge range of 20 to 200 or similar will never give you a reasonable photo quality)
- Range 11 to 24 mm (ish) is considered wide
- Range 24 to 70 mm is mid-range (or zoom)
- Range 70mm + is superzoom
- 24 to 100 lens is an all-purpose lens, great for travel, landscape, portrait, (some) sports,
- Zoom lenses (70mm and more) are great for sport, event, flower and animal photography
- This topic is only focusing on the “focal length” element of lenses, there are more lens aspects like aperture, focus speed, sharpness, detail capturing and more