

Go-to places to search for answers:

Youtube channels:

- Wadstein (blueprints & general)
 - <https://www.youtube.com/channel/UCOVfF7PfLbRdVEm0hONTrNQ>
 - IF YOU EVER HAVE A QUESTION ABOUT A BLUEPRINT NODE - GO HERE FIRST!
 - He covers nearly everything. I recommend just regularly watching a 2-3 different videos a day just to expand your knowledge of Unreal. Best single resource online
- Virtus (game dev)
 - <https://www.youtube.com/user/VirtusEdu>
 - Really helpful for seeing quickly an example of how to make something in a game. Also gives good explanations for what things do and why
- Unreal (general)
 - <https://www.youtube.com/channel/UCBobmJyzsJ6LI7UbfhI4iwQ>
- Ryan Manning (lighting)
 - <https://www.youtube.com/user/r0xburrry>
 - Amazing resource for how to use lighting in Unreal. It's a very, very important topic towards making your games go from looking amateur to AAA.
- Ryan Laley (game dev)
 - https://www.youtube.com/channel/UCsS5i15vvUbwfr_1JdRKCAA
 - Similar to Virtus, but with different topics and different approaches to coding things. Another great channel

Websites:

- Rey Wenderlich
 - <https://www.raywenderlich.com/unreal-engine>
 - These are some of the MOST EXCELLENT written tutorials I've seen. It doesn't cover a lot of questions, but what it does cover it does superbly
- Unreal Answer Hub
 - <https://answers.unrealengine.com/index.html>
 - If you're googling for a specific answer, chances are someone's asked it already and it's been answered
- Unreal Documentation
 - <https://docs.unrealengine.com/en-US/Engine/index.html>

- A few articles are really well written and informative (animation retargeting, lighting types, material definitions, collision behavior). But most are not.
- So only really come here if everything else fails or you're looking for a different explanation for something to help you get it.

If new to game dev entirely:

- <https://www.udemy.com/course/be-a-game-maker-with-gamemaker-studio-2/>
- Why is this good?
 - Basics of how a game engine works (uses Gamemaker Studio 2)
 - Levels, placing objects in levels
 - Movement controls
 - Collisions
 - Gameplay systems (health, damage)
 - Basic enemy AI (see player, jump at player; see player, chase player)

If new to Unreal Engine

Getting started w/ Unreal

- Virtus Level Design Series
 - <https://www.youtube.com/playlist?list=PLL0cLF8gjBpo3EUz0KAwdZrDYr6FzfLG>
 - Why?
 - One of the fastest and great explanations for landscaping tool, BSPs, lighting, and just basic stuff for making levels. I watch the Lighting video the most often
- Unreal Engine Youtube Playlists
 - *Generally speaking, these playlists aren't as good as others because of how long they are. They do have good info and a lot of it, but they tend to be 2x-3x as long as others that teach the same things. Except for vids w/ Zak Parrish. He's incredible.*
 - Creating Materials
 - https://www.youtube.com/playlist?list=PLZlv_N0_O1gbQjgY0nDwZNYe_N8lcYWS-
 - Why?
 - Because Unreal uses physically based rendering (PBR) for the graphics which is not as simple as "set the color for an object and you'll see it in that color in game." It's much more complicated. This is one of the best explanations I've seen for

- Creating a basic, playable game (top down shooter):
 - https://www.youtube.com/playlist?list=PLZlv_N0_O1gb5sdygbSiEU7hb0eomNLdq
 - Why?
 - Covers useful topics like creating a player class, spawning enemies, giving and receiving damage, respawning the player
- Virtus Learning Hub - RPG or FPS Series
 - RPG:
 - https://www.youtube.com/playlist?list=PLL0cLF8gjBpqA8DcrhL_O9kD4jsUqhDR6
 - FPS:
 - <https://www.youtube.com/playlist?list=PLL0cLF8gjBprG6487lxqSq-aEo6ZXLDLg>
 - Why?
 - Great for boosting confidence b/c you'll make something playable very fast. Some of the methods aren't game dev practices (for example, how he uses the Level Blueprint) but for a beginner, it's a great way to get core things done. And he explains stuff well
- Rey Wenderlich
 -
- Mathew Wadstein (THE BEST)
- Lighting a scene - indoor & outdoor

Learning specific things

AI

- Rey Wenderlich muffin:
 - <https://www.raywenderlich.com/238-unreal-engine-4-tutorial-artificial-intelligence>
- Wadstein AI series
 - https://www.youtube.com/playlist?list=PLSlkDq2rO1t47gMJ0GdO5aSTfOKy_TTI_n
- Ryan Laley
 - <https://www.youtube.com/watch?v=zNJEvAGiw7w>

Blueprint to blueprint communication

- Event dispatchers
 - <https://youtu.be/sEcoWGrF1Hg>
- Blueprint interface
 - https://youtu.be/G_hLUkm7v44
- Casting & Blueprint to Blueprint communication in general
 - <https://youtu.be/6lOgkWv1IEY>

Audio

- <https://www.raywenderlich.com/354-unreal-engine-4-audio-tutorial>

Collisions between actors / objects

- Wadstein:
 - <https://youtu.be/zZPyMjEWpF8>
- Unreal wiki on collisions:
 - <https://docs.unrealengine.com/en-US/Engine/Physics/Collision/Overview/index.html>

Projectile Movement Component

- Wadstein:
 - <https://youtu.be/AM3TXKI-4co>
 - For behavior of bullets, lasers, other fired/projectiles

Rotating Movement Component

- Wadstein:
 - <https://youtu.be/gUk-BL-lyug>
 - For getting things to rotate (around its center, around another point or axis)

Melee Combat w/ combo

- Titanic Games Part 28:
 - https://www.youtube.com/playlist?list=PLtpNaPTkjdL6jauQ8ZbiB9xe9ay_zfWNE

Creating an Inventory System

- Titanic Games Parts 11 - 14.5:
 - https://www.youtube.com/playlist?list=PLtpNaPTkjdL6jauQ8ZbiB9xe9ay_zfWNE

Animation

- Animation Blueprints
 - <https://youtu.be/Mr7q5Cfjj7c> (part of full 3rd person game playlist, but I can't find the playlist now)
- Retargeting:
 - <https://docs.unrealengine.com/en-US/Engine/Animation/AnimHowTo/Retargeting/index.html>
 - https://www.youtube.com/playlist?list=PLZlv_N0_O1gbwdylm78w42fZ1t8dDCIsI
 - <https://docs.unrealengine.com/en-US/Engine/Animation/AnimationRetargeting/index.html>
- AnimMontages
 - <https://youtu.be/5DR7pxGouWE>
 - <https://youtu.be/8CA4e818erY>
 - It'd a way to superimpose animations and play them on top of current animations

- Blender to Unreal, making skeleton:
 - <https://youtu.be/r986GDnpvXw>

Lighting

- Exterior:
 - <https://youtu.be/FsjqVlyr0O4>
 - Covers: Directional Light, Skylight, BP_Sky_Sphere, Atmospheric Fog
 - <https://youtu.be/ihg4uirMcec>
 - An excellent and comprehensive explanation for what different lighting controls there are and what they do
 - <https://youtu.be/DDVJ2JlsB3U>
 - Very long, not terribly great. But has a few great gems like: Directional Light Intensity = 3.14 for outdoor settings is ideal
- Interiors:
 - Ryan Manning 1: <https://youtu.be/ZWADIXyfYCK>
 - Ryan Manning 2: <https://youtu.be/xUEEI0yyKVo>
- Exponential Height Fog
 - <https://youtu.be/Xd7-rTzfmCo>

UI

- Virtus (first 2 vids kinda not helpful):
 - <https://www.youtube.com/playlist?list=PLL0cLF8gjBprlHm0yo-Vj9oBwi2-gAIEd>
 - Good for showing how to just get a basic UI up and running
- Wadstein:
 - https://www.youtube.com/playlist?list=PLSlkDq2rO1t5r1tj6gLWD_EesQ8lZtN_h
 - Explains nearly every UI function/tool there is

Version Control

- Git for Unreal: <https://youtu.be/FXMTThrLWFKQ>
- Perforce for Unreal: <https://youtu.be/eH9LGAu-nlw>

Cel Shading & Toon Outline

- Cel Shading:
 - <https://www.raywenderlich.com/146-unreal-engine-4-cel-shading-tutorial>
 - Does a good job explaining “why” this works, then shows “how” to do it
- Outline:
 - <https://www.raywenderlich.com/92-unreal-engine-4-toon-outlines-tutorial>
 - Does a good job explaining “why” this works, then shows “how” to do it
- Great cel shader + outline (my personal favorite)
 - <https://youtu.be/0UBNXneL1oo>

General Things to Learn / Know About (**incomplete**)

- Game Instances
 - No data is saved when you load a new map. So your player will have all their health restored and lose all their items when a new level loads.
 - So to save data/info, you need a Game Instance
- Turn off Auto Exposure
 - Do this with a post process volume. Set the min and max exposure setting to the same value
- Character Movement Component
 - *No one really teaches this but it's incredibly useful and yet difficult to learn how exactly to use every control it offers. Ask me for help if needed*