DSP:

<http://www.dspguide.com/ch6/3.htm>

thefouriertransform.com

Good explanation for FT and frequency domain:

<https://www.quora.com/What-exactly-is-frequency-domain-in-Digital-signal-processing>

Python:

<https://www.youtube.com/playlist?list=PL-osiE80TeTsqhIuOqKhwlXsIBIdSeYtc>

1-4

<https://www.youtube.com/playlist?list=PL-osiE80TeTt2d9bfVyTiXJA-UTHn6WwU>

1-9

Spectrogram

<https://en.wikipedia.org/wiki/Spectrogram>

Creating a spectrogram using the FFT is a [digital process](https://en.wikipedia.org/wiki/Digital_signal_processing). Digitally [sampled](https://en.wikipedia.org/wiki/Sampling_(signal_processing)) data, in the [time domain](https://en.wikipedia.org/wiki/Time_series), is broken up into chunks, which usually overlap, and Fourier transformed to calculate the magnitude of the frequency spectrum for each chunk. Each chunk then corresponds to a vertical line in the image; a measurement of magnitude versus frequency for a specific moment in time (the midpoint of the chunk). These spectrums or time plots are then "laid side by side" to form the image or a three-dimensional surface,[[4]](https://en.wikipedia.org/wiki/Spectrogram#cite_note-4) or slightly overlapped in various ways, i.e. [windowing](https://en.wikipedia.org/wiki/Window_function#Overlapping_windows). This process essentially corresponds to computing the squared [magnitude](https://en.wikipedia.org/wiki/Magnitude_(mathematics)) of the [short-time Fourier transform](https://en.wikipedia.org/wiki/Short-time_Fourier_transform) (STFT) of the signal {\displaystyle s(t)} — that is, for a window width {\displaystyle \omega }, {\displaystyle \mathrm {spectrogram} (t,\omega )=\left|\mathrm {STFT} (t,\omega )\right|^{2}}

<https://www.datacamp.com/community/tutorials/matplotlib-tutorial-python?utm_source=adwords_ppc&utm_campaignid=1455363063&utm_adgroupid=65083631748&utm_device=c&utm_keyword=&utm_matchtype=b&utm_network=g&utm_adpostion=1t1&utm_creative=332602034364&utm_targetid=dsa-473406587955&utm_loc_interest_ms=&utm_loc_physical_ms=9040174&gclid=CjwKCAiAp5nyBRABEiwApTwjXm6qhlvmX337Oiuw6D_ViVbCeUhbhEZ1D1Wxe88iZ0BY_K_hFJ7vORoCbMUQAvD_BwE>

For matplotlib python

<https://matplotlib.org/examples/lines_bars_and_markers/line_demo_dash_control.html>

Some examples of matplotlib

<https://www.guru99.com/numpy-tutorial.html>

numpy

<https://www.w3schools.com/python/python_tuples.asp>

good explanation of python basics

<https://machinelearningmastery.com/gentle-introduction-n-dimensional-arrays-python-numpy/>

good explanation of numpy