**Learn about Chromosomes and Genes**

Chromosomes  
<https://www.youtube.com/watch?v=tsVHWbXqum8>

Gene regulation

<https://www.youtube.com/watch?v=D-usAds_-lU>

Videos: 10 What is DNA?, 45 DNA Replication, 46 Translation and Transcription, 66 Mutations, 69 Proteins, 70 Nucleic Acids

<http://www.phschool.com/science/biology_place/biocoach/index.html>

DNA transcription and translation:

* <https://www.youtube.com/watch?v=-K8Y0ATkkAI>
* <https://www.youtube.com/watch?v=h3b9ArupXZg>

Biopython:

* <http://biopython.org/DIST/docs/api/Bio.Blast-module.html>
* <http://biopython.org/DIST/docs/tutorial/Tutorial.html#htoc86>

<ftp://ftp.ncbi.nlm.nih.gov/pub/factsheets/Factsheet_RefSeq.pdf>  
<http://archive.ics.uci.edu/ml/datasets/Ecoli>  
<http://www.biostathandbook.com/simplelogistic.html>  
<https://scfbm.biomedcentral.com/articles/10.1186/1751-0473-3-179>

Proteins:

<http://www.rsc.org/Education/Teachers/Resources/cfb/proteins.htm>

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

**Learn about Smith-Waterman and BLAST**

<http://www.nature.com/scitable/topicpage/basic-local-alignment-search-tool-blast-29096>  
<http://wiki.c2b2.columbia.edu/workbench/index.php/BLAST>  
<https://en.wikipedia.org/wiki/BLAST#Comparing_BLAST_and_the_Smith-Waterman_Process>

Learn about Python

Pandas/Intro to ML: https://www.youtube.com/user/dataschool/playlists

CSV

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

https://www.youtube.com/watch?v=Ps\_NHjELVfg

https://www.youtube.com/watch?v=Ps\_NHjELVfg

https://www.youtube.com/watch?v=Uh2ebFW8OYM

Free intro Python course: <https://www.codeschool.com/courses/try-python>

<http://www.afterhoursprogramming.com/tutorial/Python/Overview/>

https://people.duke.edu/~ccc14/sta-663/IntroductionToPythonSolutions.html

https://realpython.com/learn/python-first-steps/

<http://openbookproject.net/thinkcs/python/english3e/>

<http://hamelg.blogspot.com/2015/12/python-for-data-analysis-index.html>

<https://www.tutorialspoint.com/python/>

<https://engineering.ucsb.edu/~shell/che210d/numpy.pdf>

<http://hamelg.blogspot.com/2015/10/python-for-data-analysis-part-4.html>

spyder:

* <http://www.southampton.ac.uk/~fangohr/blog/spyder-the-python-ide.html#first-steps-with-spyder>
* https://www.youtube.com/watch?v=4Iu7UrZXzEY&t=171s
* <http://user.physics.unc.edu/~sheila/pythontutorial.html>
* <http://www.dyinglovegrape.com/data_analysis/part1/1da3.php>

pandas

* <https://www.datacamp.com/community/tutorials/pandas-tutorial-dataframe-python#gs.qbHbkpg>

Learn about Machine Learning

http://machinelearningmastery.com/machine-learning-matters/

<http://machinelearningmastery.com/process-for-working-through-machine-learning-problems/>

<http://machinelearningmastery.com/how-to-prepare-data-for-machine-learning/>

Machine Learning Recipes with Josh Gordon:

<https://www.youtube.com/playlist?list=PLOU2XLYxmsIIuiBfYad6rFYQU_jL2ryal>

<http://scikit-learn.org/stable/tutorial/basic/tutorial.html>

<http://blog.echen.me/2011/04/27/choosing-a-machine-learning-classifier/>

<http://scikit-learn.org/stable/modules/tree.html>

<http://scikit-learn.org/stable/auto_examples/tree/plot_iris.html>

Statistics

<https://web.csulb.edu/~msaintg/ppa696/696stsig.htm>