# AI Programming with Python Nanodegree Syllabus

## Contact Info

While going through the program, if you have questions about anything, you can reach us at . For help from Udacity Mentors and your peers visit the Udacity Classroom.

## Nanodegree Program Info

**Version**: 2.0.0

**Length of Program**: 74 Days*

** This is a self-paced program and the length is an estimation of total hours the average student may take to complete all required coursework, including lecture and project time. Actual hours may vary.*

## Part 1: Welcome to AI Programming

## Part 2: Introduction to Python

Start coding with Python, drawing upon libraries and automation scripts to solve complex problems quickly.

**Project: Use a Pre-trained Image Classifier to Identify Dog Breeds**

## Part 3: Jupyter Notebooks, Anaconda, Numpy, Pandas

Learn how to use all the key tools for working with data in Python: Jupyter Notebooks, NumPy, Anaconda, Pandas, and Matplotlib.

# Part 4: Linear Algebra Essentials

Learn the foundational linear algebra you need for AI success: vectors, linear transformations, and matrices—as well as the linear algebra behind neural networks.

# Part 5: Calculus Essentials

Learn the foundations of calculus to understand how to train a neural network: plotting, derivatives, the chain rule, and more. See how these mathematical skills visually come to life with a neural network example.

# Part 6: Neural Networks

Acquire a solid foundation in deep learning and neural networks. Learn about techniques for how to improve the training of a neural network, and how to use PyTorch for building deep learning models.

# Part 7: Create Your Own Image Classifier

In the second and final project for this course, you'll build a state-of-the-art image classification application.

**Project: Create Your Own Image Classifier**

In this project, you'll build a Python application that can train an image classifier on a dataset, then predict new images using the trained model.

# Part 8: Next Steps!

Congratulations!!!!! You finished your first nanodegree in the School of AI! What are the next steps?

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