**IDC 5100 – Fall 2022**

**Introduction to Data Science Bootcamp**

**Instructor:** Matthew Kongsiri

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**Class:** Pre-semester orientation week, Mon-Wed 9am-4pm

**Office Hours:** Online, by appointment

**Location:**   TBD

**Prerequisites:** None

**Course Description:**

This bootcamp aims to equip all students entering the graduate program in Applied Data Science with introductory skills and knowledge needed to conduct further coursework in the program. This will help students from diverse backgrounds to have a common knowledge base as a cohort. Topics will include a focus on Python basics for Data Science, an overview of environment set-up and prominent IDEs, use of GitHub/BitBucket, general repository and code conventions, as well as a brief introduction to GPUs, Python scripting, and some of the package/delivery options for finalized models.

# Course Materials:

***Required Materials***

A laptop capable of running development environments (e.g., JupyterLab) will be required in class to follow along with course exercises. The course will begin with a walkthrough of how to set-up an environment for Data Science work from scratch.

***Provided Materials***

‘Cheat Sheets’ with commands, functions, and use-cases for many commonly encountered situations for various tools, including Docker commands and Command Line Tips.

**Assessment:**

This course is a 0-credit S/U (Satisfactory/Unsatisfactory) course where the students are expected to attend all three days of the Bootcamp and complete the exercises as instructed by the course Instructor. Formal attendance will be taken. In case of medical reasons for no attendance, official documentation must be provided.

**Topics Scheduling**

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| **Day** | **Module** | **Topics** |
| **Day 1** | Introduction to Data Science  Module I: Environment Set-Up  Module II: Python Basics | - Introduction & Course Summary  - Intro to Command Line/Terminal  - Environment & Resources:  Anaconda, IDEs/Editors  Virtual Environments  - JupyterLab and Notebooks - Install/Import Packages  - Python Basics & Practice  Variables, Data Types  Lists, Tuples, Dictionaries  For Loops  List Comprehension  - BitBucket/GitHub Set-Up  - Repo Conventions  - Repo Commit Process |
| **Day 2** | Module III: Data Science Basics  Module IV: Practical Data Science | - Libraries/Packages to Use  - Import Packages  - Loading Various Data Files  - Intro to Pandas DataFrames  - EDA & Visualizations  - Data Cleaning & Processing  - Saving Data; Saving Visuals  - Useful Model Libraries  - Walkthrough Classification Task  Decision Trees  Over/under fitting |
| **Day 3** | Module V: Repositories  Module VI: Enhancing, Selling, & Delivering Data Science Work | - GPUs through Google Colab or NVIDIA RAPIDS  - Modularizing Code  - Scripting Code (.py)  - Walkthrough Flask API  - Use of Docker  - Student Requested Topics |

**Honesty Policies:**

New College has a published policy governing Academic Dishonesty that all students should read. The policy is part of the New College Student Code of Conduct and can be found [here](https://www.ncf.edu/campus-life/student-conduct-services/student-code-of-conduct/).

**Disability Accommodations:**

Any student who, because of a documented disability, may require special arrangements or accommodations, should contact the instructor as soon as possible to make necessary arrangements. Students must present appropriate verification from Student Disability Services during the instructor’s office hours. Please note that instructors are not permitted to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please visit Student Disability Services in HCL 3 or e-mail [disabilityservices@ncf.edu](mailto:disabilityservices@ncf.edu).

**Equity, Diversity, and Equal Opportunity:**

New College’s commitment to academic excellence can only be realized in a learning environment that is inclusive, characterized by openness to diverse perspectives, and marked by mutual respect. Anything short of this aspiration is inconsistent with our commitment. Equal access, and the opportunity to participate fully in all of our programs and facilities, without regard to race, color, creed, religion, political ideology, national origin, age, marital status, disability, public assistance status, veteran status, gender identity, gender expression, or sexual orientation, is essential to that commitment and will be the standard to which we expect all members of our learning community to adhere.

**Title IX:**

New College of Florida is committed to equal access to education pursuant to Title IX of the Educational Amendments of 1972. The law protects all individuals on our campus from gender-based discrimination or exclusion or instances of sexual misconduct. All full-time faculty, full-time staff, and resident advisors are Responsible Employees required to report any known instances of sexual

misconduct or gender discrimination to the Title IX Coordinator. Please contact our Title IX coordinator ([titleix@ncf.edu](mailto:titleix@ncf.edu)) or see the [website](https://www.ncf.edu/campus-life/title-ix/) for more information.

**Software Use:**

All faculty, staff and student of New College are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against New College policies and rules, disciplinary action will be taken as appropriate. We, the members of the New College community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.