

PROFESSIONAL TRAINING

ACADEMIC YEAR: 2021-2023

DEPARTMENT: MSC BIOINFORMATICS AND DATA SCIENCE

(2021-2023)

COURSE TITLE: PROFESSIONAL TRAINING

SEMESTER: 2



COURSE COORDINATOR

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DEPARTMENT OF BIOINFORMATICS

SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

CHENNAI-600119

SUBMITTED BY

YUVARAJ B

MSC. BIOINFORMATICS AND DATASCIENCE-2020-2022

SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

DRUG DISCOVERY

OBJECTIVE

In this course I learn the drug discovery process up to the filing of an Initial New Drug Application. Each week I learn the steps that a pharmaceutical or biotech company goes through to discover a new therapeutic drug. In this course you will be able to:

- Understand the pharmaceutical and biotechnology market a changing landscape
- Learn the major aspects of the drug discovery process, starting with target selection, to compound screening to designing lead candidates.
- Recognize current modern drug discovery based on the lock-and-key theory, which attempts to use one single compound to hit one target to combat the related disease.
- Increase understanding of the various drug discovery tools and methods that are used for finding, identifying and designing a new drug.
- Define and understand the regulatory responsibilities for drug discovery to file an Investigational New Drug Application

SKILLS:

- Pharmacology
- Drug Development
- Drug Development
- Pharmacokinetics



SQL FOR DATA SCIENCE

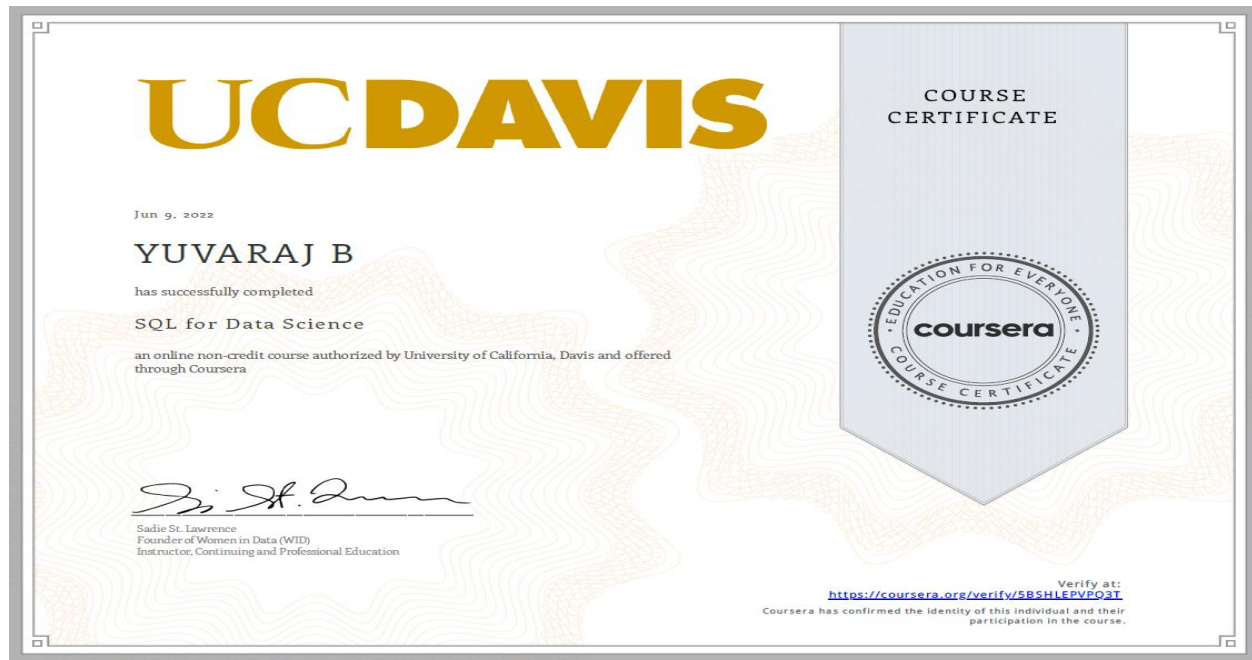
OBJECTIVE:

This course is designed to give you a primer in the fundamentals of SQL and working with data so that you can begin analyzing it for data science purposes. You will begin to ask the right questions and come up with good answers to deliver valuable insights for your organization. This course starts with the basics and assumes you do not have any knowledge or skills in SQL. It will build on that foundation and gradually have you write both simple and complex queries to help you select data from tables. You'll start to work with different types of data like strings and numbers and discuss methods to filter and pare down your results.

- Identify a subset of data needed from a column or set of columns and write a SQL query to limit to those results
- Use SQL commands to filter, sort, and summarize data.
- Create an analysis table from multiple queries using the UNION operator
- Manipulate strings, dates, & numeric data using functions to integrate data from different sources into fields with the correct format for analysis.

SKILLS

- Data science
- Data analysis
- Sqlite
- SQL



MACHINE LEARNING WITH PYTHON

OBJECTIVE

This course dives into the basics of machine learning using an approachable, and well-known programming language, Python. In this course, we will be reviewing two main components: First, you will be learning about the purpose of Machine Learning and where it applies to the real

world. Second, you will get a general overview of Machine Learning topics such as supervised vs unsupervised learning, model evaluation, and Machine Learning algorithms.

- Give examples of Machine Learning in various industries.
- Outline the steps machine learning uses to solve problems.
- Provide examples of various techniques used in machine learning.
- Describe the Python libraries for Machine Learning

SKILLS

- Python libraries
- Machine learning
- Regression
- Hierarchical clustering
- K-Means clustering



Jun 9, 2022

YUVARAJ B

has successfully completed

Machine Learning with Python

an online non-credit course authorized by IBM and offered through Coursera

Saeed Aghabozorgi
Sr. Data Scientist
IBM

Joseph Santarcangelo
Senior Data Scientist
IBM

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CERTIFICATE**



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INTRODUCTION TO STATISTICS

OBJECTIVES:

In this course, you will be able to perform exploratory data analysis, understand key principles of sampling, and select appropriate tests of significance for multiple contexts. You will gain the foundational skills that prepare you to pursue more advanced topics in statistical thinking and machine learning.

SKILLS

- Descriptive Statistics
- Sampling and Randomized Controlled Experiments
- Probability
- Sampling Distributions and the Central Limit Theorem
- Regression
- Common Tests of Significance
- Resampling, Multiple Comparisons.

Stanford | ONLINE

Jun 5, 2022

YUVARAJ B

has successfully completed

Introduction to Statistics

an online non-credit course authorized by Stanford University and offered through Coursera



Guenther Walther
Professor of Statistics
Department of Statistics, Stanford University

COURSE
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DATA VISUALIZATION

OBJECTIVES:

Data visualization is the practice of translating information into a visual context, such as a map or graph, to make data easier for the human brain to understand and pull insights from. The main goal of data visualization is to make it easier to identify patterns, trends and outliers in large data sets.

SKILLS

- Line chart
- Bar charts and heatmaps
- Scatter plots
- Distribution
- Choose plot types and custom styles



CERTIFICATE OF COMPLETION

Yuvaraj B

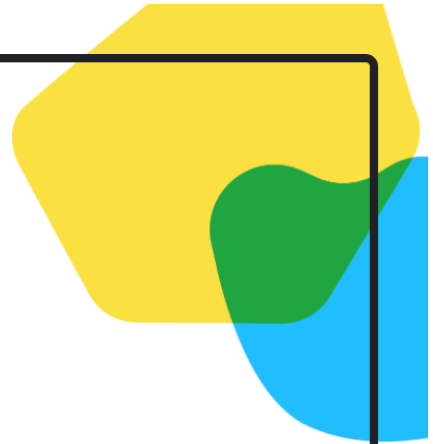
HAS SUCCESSFULLY COMPLETED THE COURSE

Data Visualization

ON JUNE 5, 2022

A handwritten signature in black ink, appearing to read "Alexis Cook", written over a horizontal line.

ALEXIS COOK, HEAD OF KAGGLE LEARN



INTRO TO SQL

OBJECTIVE:

SQL stands for Structured Query Language. SQL is used to create, remove, alter the database and database objects in a database management system and to store, retrieve, update the data in a database. SQL is a standard language for creating, accessing, manipulating database management system

SKILLS

- Getting starts with SQL and bigquery
- Select ,from and where
- Group by ,having and count
- Order by
- As and with
- Joining data



PYTHON

OBJECTIVE

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.

SKILLS

- Function and getting help
- Booleans and conditionals
- Lists
- Loops and list comprehensions
- Strings and dictionaries
- Working with external libraries



CERTIFICATE OF COMPLETION

Yuvaraj B

HAS SUCCESSFULLY COMPLETED THE COURSE

Python

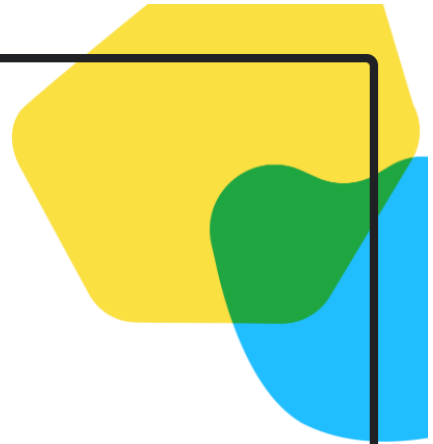
ON MAY 18, 2022

A handwritten signature in black ink, appearing to read "Colin Morris".

COLIN MORRIS, KAGGLE INSTRUCTOR

A handwritten signature in black ink, appearing to read "Alexis Cook".

ALEXIS COOK, HEAD OF KAGGLE LEARN



INTRO TO MACHINE LEARNING

OBJECTIVE

Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy

SKILLS

- How models work
- Basic data exploration
- First machine learning model
- Model validation
- Underfitting and overfitting
- Random forests
- Machine learning competitions



THANK YOU