

1 . BIOMEDICAL VISUALIZATION

DURATION - Approx. 22 hours

OBJECTIVE :

- ❖ you will be able to learn define and describe anatomical terminology related to the human body. Describe the various body systems, what comprises them, and how they relate to function. Create your own 3D modelling and animations using industry standard, open-source software (Blender).
- ❖ Analyse various visualisation techniques and methods, and be able to apply them to areas of biomedical science. This course is the first of its kind on Coursera. It explores the structure and function of the human body including terminology used.
- ❖ It showcases visualisation techniques available using technology to image and display data related to the body and biological processes.. It also provides training in the creation of animations, and exable to create your own organic 3D models and animations using Blender.amines the applicability of different types of reality.

Protocol :

1. Define and describe anatomical terminology related to the human body.
2. Describe the various body systems, what comprises them, and how they relate to function.
3. Create your own 3D modelling and animations using industry standard, open-source software (Blender)
4. Analyse various visualisation techniques and methods, and be able to apply them to areas of biomedical science.

OUTPUT :

- Exploring the human body, you will learn its structure and function; the body systems and their roles; as well as learning frequently used terminology within anatomy.
- Able to create your own organic 3D models and animations using Blender.
- New theory that will be introduced are Mixed and 'Extended reality' as a whole, and what could potentially come of the realities in the future.
- When to best use visualisation techniques; their advantages and disadvantages; and how you could use what you have learned throughout the course for future projects in your area of interest.



University of Glasgow

May 7, 2022

Gadiyaram Radha Priya

has successfully completed

Biomedical Visualisation

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

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COURSE
CERTIFICATE



Verify at:
<https://coursera.org/verify/FAM8C2QVBB22>

Coursera has confirmed the identity of this individual and their participation in the course.

2. DNA DECODED

DURATION - Approx. 9 hours

OBJECTIVE :

1. you will learn how to Cracking the Genetic Code.
2. Getting the Message Across: Transcription, Translation, and Replication.
3. to learn how to manipulate DNA.
4. to understand the entire genetic material in world.

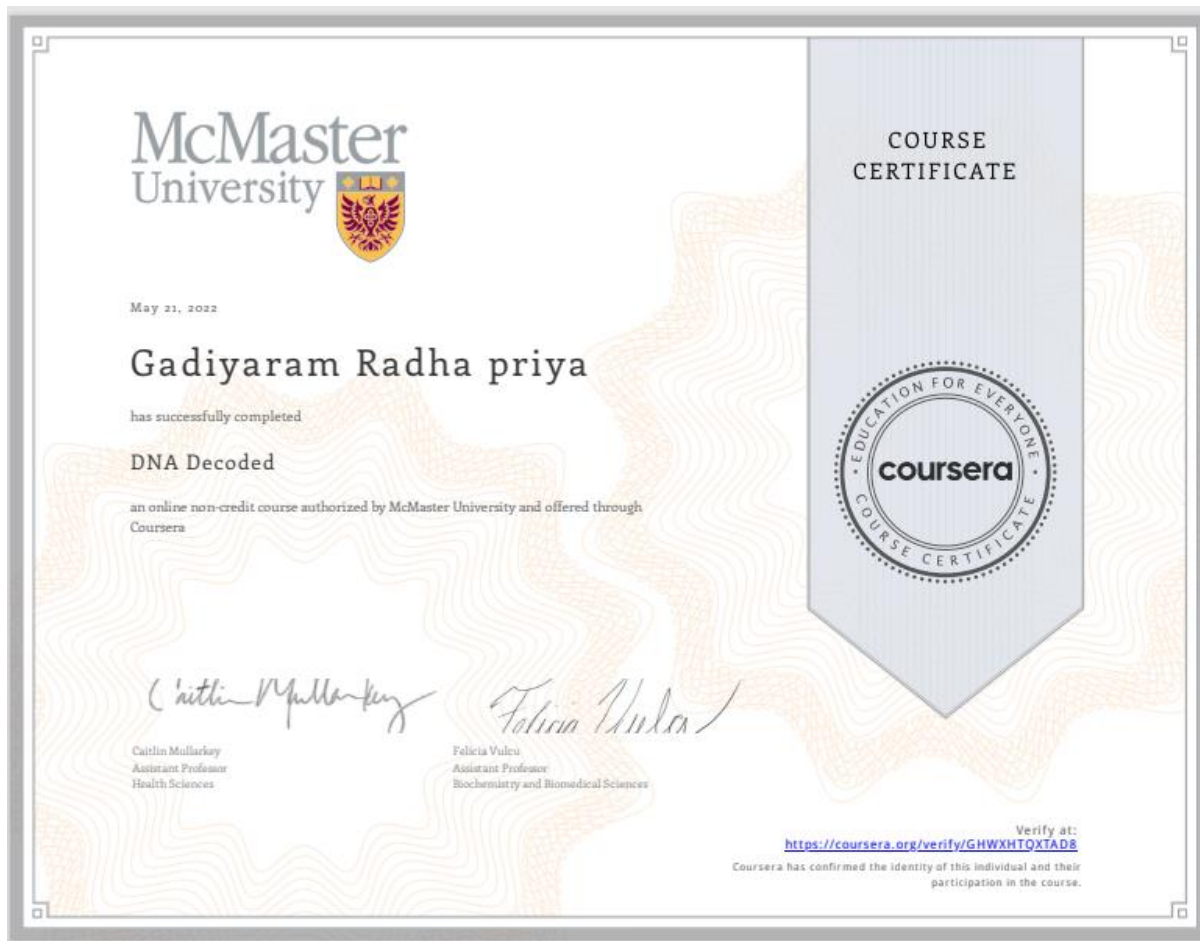
PROTOCOL :

- ❖ we'll explore the molecular structure of DNA. What is DNA? What are the basic building blocks of DNA? Where can you find DNA within a cell?
- ❖ We've all heard DNA described as "the blueprint of life," but what does that actually mean? Each one of the approximately 20,000 genes in our bodies contains the instructions for building a protein.
- ❖ we'll explore the techniques scientists use to manipulate DNA. Genetic engineering has allowed us to increase crop yields, diagnose illnesses, develop vaccines, and manufacture insulin.
- ❖ What does your DNA say about you? You may have heard that you share 99% of your genetic material with everyone else on the planet.

OUTPUT :

- Describe the basic building blocks of DNA
- Describe how scientists discovered the structure of DNA
- Apply Watson and Crick rules to determine complementary nucleotides
- Describe where DNA is in a cell and how it is organized
- Explain how DNA replicates itself

- Explain how the instructions for building a protein are transcribed onto messenger RNA



3. DRUG DISCOVERY

DURATION - Approx. 9 hours

OBJECTIVE :

In this course you will learn the drug discovery process up to the filing of an Initial New Drug Application or IND. Each week you will 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.

PROTOCOL :

- Where my perspective comes from

- The omics revolution •

The open science & IT revolutions •

The impact on drug discovery •

Applying the new biology to drug discovery –

Example 1 – Drug repositioning –

Example 2 - Determining side-effects • Words of caution

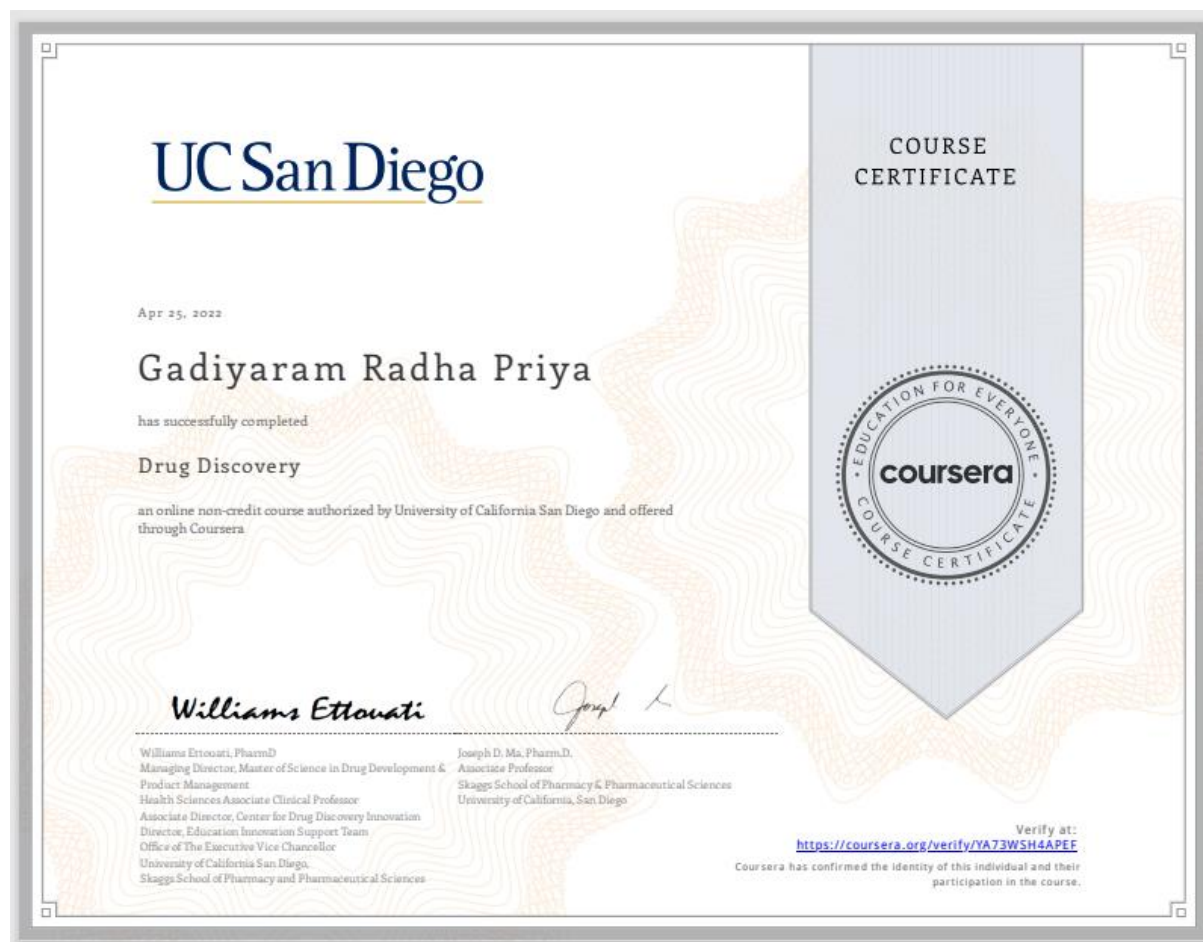
OUTPUT :

Drug Discovery Process – From target to Investigational New Drug Application (IND) –
Pharmaceutics & Life Cycle Strategic Plan •

Clinical Development - IND to New Drug Application (NDA) submission - Clinical study design •

Regulatory Requirements to File an IND and an NDA in the US & Europe • Intellectual Property
Strategy •

Commercialization Strategies – Marketing strategy; Managed markets – Strategic partnership and
business development.



4. SQL FOR DATA SCIENCE

DURATION - Approx. 14 hours

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. You will create new tables and be able to move data into them. You will learn common operators and how to combine the data. You will use case statements and concepts like data governance and profiling. You will discuss topics on data, and practice using real-world programming assignments. You will interpret the structure, meaning, and relationships in source data and use SQL as a professional to shape your data for targeted analysis purposes.

Protocol;

- 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.

Output:

- Use SQL commands to filter, sort, & summarize data; manipulate strings, dates, & numerical data from different sources for analysis
- Assess and create datasets to solve your business questions and problems using SQL
- Use the collaborative Databricks workspace and create an end-to-end pipeline that reads data, transforms it, and saves the result
- Develop a project proposal & select your data, perform statistical analysis & develop metrics, and present your findings & make recommendations

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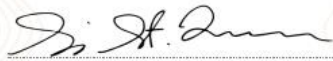
May 19, 2022

Gadiyaram Radha Priya

has successfully completed

SQL for Data Science

an online non-credit course authorized by University of California, Davis and offered through Coursera



Sadie St. Lawrence
Founder of Women in Data (WID)
Instructor, Continuing and Professional Education

COURSE
CERTIFICATE



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<https://coursera.org/verify/B3GZWWKFHF3S>

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PROFESSIONAL TRAINING

YEAR: 2021-2022

Program & Department : M.Sc Bioinformatics and Datascience (2021-2022)



COURSE COORDINATOR **Dr . D. Alex Anand**

Associate Professor Department of Bioinformatics

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SUBMITTED BY

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MSc. BIOINFORMATICS AND DATASCIENCE

2021-2022

SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

