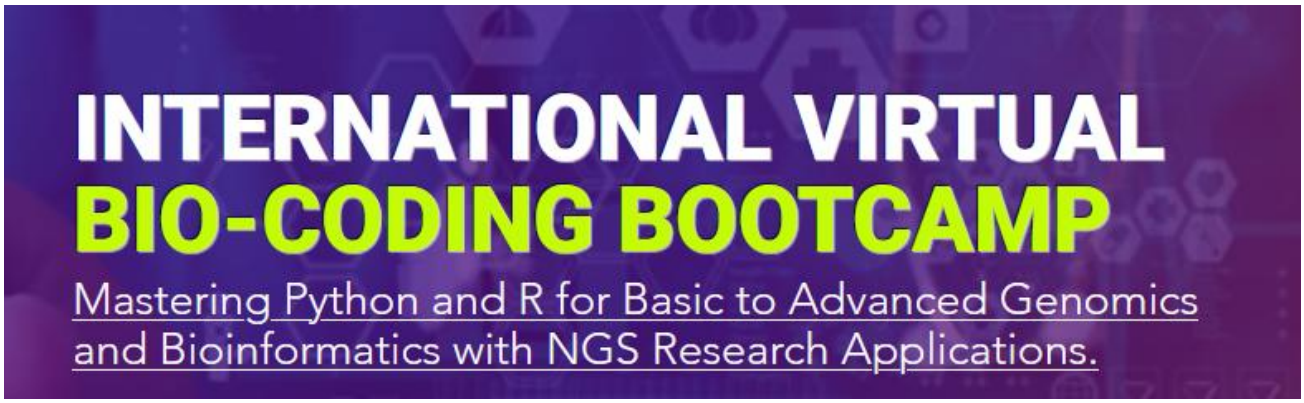

ABOUT THE BOOTCAMP

Embark on a transformative journey with us at the International Virtual Bio-Coding Bootcamp and Delve into cutting-edge techniques, and hands-on coding experiences focusing on mastering Python and R for genomics and bioinformatics with real-world NGS data research applications guided by an industrial expert.

This boot camp goes beyond just skill acquisition – it's a gateway to empowering life scientists for diverse paths, including pursuing advanced degrees. ***Whether you're aspiring for a master's, or PhD or seeking bioinformatics-related jobs, our program equips you with the essential coding expertise needed to excel in academia, research, and profession.*** By enhancing your capabilities, you not only increase employability but also contribute to groundbreaking research, innovation, and advancements in biotechnology.

HANDS-ON TRAINING BROCHURE

On Python, Bio-Python, Linux Command Line, Matplotlib, Seaborn, RMarkdown, Pandas , R & ggplot2, Jupyter Notebooks, dplyr & tidy.

Week	Topic	Content
Week 1: Introduction to Linux and Programming Basics	Introduction to Linux: Basics and Commands	- Overview of Linux operating system - Basic commands and file manipulation
	Linux File System Navigation: Piping	- Advanced file system navigation - Introduction to piping and redirection in Linux

	Linux Shell Scripting Basics: Variables, Conditionals, Loops	- Introduction to shell scripting - Variables, conditionals, and loops in shell scripts
	Installing and Using R and Python in Linux	- Installation of R and Python on Linux - Setting up development environments
	Introduction to R Studio and Jupyter Notebook, Data Loading	- Overview of R Studio and Jupyter Notebooks - Loading and handling data in R and Python
Week 2: R Programming Fundamentals	Introduction to R: Variables, Data Types, Operators	- Basics of R programming language - Variables, data types, and operators in R
	R Programming: Loops and Functions	- Advanced R programming concepts - Implementing loops and functions in R
	R Programming: Statistical Inference in R: T-test, ANOVA	- Statistical inference using R - T-test and ANOVA in R programming
	R Programming: Data Visualization with ggplot2 in R	- Data visualization using ggplot2 in R - Creating insightful plots and graphs
Week 3: Python Programming and Data Science Libraries	Introduction to Python Syntax and Constructs	- Basics of Python programming language - Syntax and fundamental constructs
	Basic Programming in Python: Control Flow, Functions, Modules	- Control flow structures in Python - Functions and modular programming in Python
	Python Data Science Libraries: NumPy and Pandas	- Introduction to NumPy and Pandas libraries - Data manipulation and analysis in Python

	Python Data Visualization with Matplotlib and Seaborn	- Data visualization using Matplotlib and Seaborn - Creating informative visualizations in Python
	Integrating R and Python in Bioinformatics, Biopython	- Strategies for integrating R and Python in bioinformatics - Introduction to Biopython
Week 4: Bioinformatics and Machine Learning Basics	Bioconductor Packages & Gene Expression Analysis: Data Exploration, Analysis, and Visualization	- Overview of Bioconductor packages - Gene expression analysis using R and Python
	R Programming: Project Based on R practice	- Applying R programming skills in a real-world project
	Python Data Science: Project Based on Python Practice	- Applying Python data science skills in a real-world project
	Machine Learning Basics: Data Cleaning and Exploratory Data Analysis	- Basics of machine learning - Data cleaning and exploratory data analysis in preparation for machine learning
	Machine Learning Basics: Supervised & Unsupervised Learning, k-Nearest Neighbors	- Introduction to supervised and unsupervised learning - Application of the k-Nearest Neighbors algorithm
	Q&A Session	- Open session for participants to ask questions, seek clarifications, and discuss challenges