(स्थापना / Established in 1956)
बेहतर भविष्य के लिए क्षमता निर्माण
Capacity Building for a Better Future

International Institute for Population Sciences

Department of Survey Research and Data Analytics

Organizing a workshop on

Introduction to Python Programming

1st to 5th March 2023

About IIPS

The International Institute for Population Sciences, which celebrated its Golden Jubilee in the year 2006, was established in Mumbai in July 1956 with the collaboration of the United Nations Population Fund (UNFPA), the Government of India, and the Sir Dorabji Tata Trust to serve as the regional Institute for training and research in population studies for the countries in Asia and the Pacific region. The Institute is a "Deemed University" functioning under the administrative control of the Ministry of Health and Family Welfare, Government of India. This is the only Institute of its kind in the world exclusively devoted to teaching and research in population and health-related issues. The IIPS alumnus is occupying prestigious positions in international and national organizations, universities, development agencies, and non-governmental organizations and has created a brand value for the Institute. The Institute runs several research activities in collaboration with international and national research institutes/organizations and universities.

The Institute plays a pivotal role in planning and development of the country by generating valuable health and development indicators through large scale nationwide sample surveys at state and district level and is a National Nodal Agency for conducting prestigious surveys like NFHS (DHS-India), DLHS, LASI, SAGE, GATS, and Youth Study. Until 2018, the Institute has trained 3953 students (3275 from India and 678 from 41 different countries) through various courses.

Workshop Overview

In the era of digital data, coding and analytics, students/practitioners of different disciplines must have knowledge of basic coding to venture into the dynamic world of data-driven decision making. 'Introduction to Python Programming' workshop is designed for non-programmers to get the flair of coding that will further help them to undertake advanced-level coding courses in future. Python is a very powerful open-source language, which is capable of doing phenomenal data management and analysis tasks.

Relevance of the Workshop

The learnings are directly applicable to contemporary job roles in corporate/government/non-profit organizations in the field of data handling and analytics. The learnings can be effectively utilized in project/research work as well.

Dates

March 01-05, 2023

Venue

ICT Unit Lab, International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai-400088, Maharashtra, India

Who can Apply

Research Students/Academicians/Professionals working in the field of applied econometrics/statistics/mathematics/demography/population studies and public health.

Workshop Outcomes

After completion of this workshop, the participants are expected to

- Apply coding and write programs in Python
- Use python coding for string extraction, manipulation and data handling
- Apply different in-built modules such as math, random and Regular Expressions for computation and analysis purpose
- Apply different data analysis modules such as NumPy, Pandas for exploring and analyzing data
- Analyze data using various visual representations and descriptive measures

Intake capacity

Maximum 30

Course fee

Rs.3000/-

What we provide

Access to computer lab, stationary kit, course material in soft form, tea and lunch during workshop days, and certificate on successful completion.

Important Dates

Last date to submit application: 05/02/2023
Announcement of selected candidates: 07/02/2023

Session Details

Day	Session	Topic	Detailed Content
Day 1	Session-1 (90 minutes)	Introduction to Python Programming	Introduction and Installation of Anaconda platform, The Python Shell, Use of a text editor , Jupyter Notebook, Spyder, Executing Python scripts, Basic Syntax, Variables, Data Types, Operators
		Variables, Data Types, Operators	
	Hands-on practice (90 minutes)		
	Session-2 (90 minutes)	Conditional Statements, Looping, Control Statements	Conditional Statements: if, elif, else Nested if-else, catching exceptions "try and except"
			Looping: For, While, Nested loops Control Statements: Break, Continue, Pass
			Control Flow Statements Functions
	Hands-on practice (90 minutes)		
Day 2	Session-1 (90 minutes)	File Handling	**File Handling**: Opening files, Reading files, Searching through a file, Writing files
		String Manipulation	**String Manipulation**: Accessing Strings, Basic Operations, String Slices, looping and counting, String Methods, Parsing strings
	Hands-on practice (90 minutes)		
	Session-2 (90 minutes)	Lists Dictionaries Tuples	**Lists:** Introduction, Accessing Lists, Operations, Working with Lists, Functions and Methods
			Dictionaries: Introduction, accessing values in Dictionaries, Working with Dictionaries, Properties, Functions **Tuples:** Introduction, Accessing tuples, Operations, Working with Tuples, Functions and Methods
	Hands-on practice (90 minutes)		
Day 3	Session-1 (90 minutes)	Function Modules	**Functions:** Built-in functions, defining a function, Calling a function, Function Arguments
			Modules: Importing a Module, Math Module, Random Module, Regular Expression Module
	Hands-on practice (90 minutes)		
	Session-2 (90 minutes)	Regular Expressions (RE)	**Regular Expressions (RE):** Character matching using RE, extracting data using RE
	Hands-on practice (90 minutes)		
Day 4	Session-1 (90 minutes)	NumPy	**NumPy** Ndarray-Creating NumPy arrays, types of data, the dtype option, intrinsic creation of an array, Operations on NumPy Arrays, arithmetic operators, the matrix product, increment and decrement operators, universal functions (ufunc), aggregate functions, indexing an array, Slicing arrays, iterating an array, shape manipulation, Array manipulation- splitting and joining arrays, Reading and writing array on data files.
	Hands-on practice (90 minutes)		
	Session-2 (90 minutes)	Pandas	**Pandas** Introduction to Pandas data structures, Creating series, Creating DataFrames, Adding data, Saving DataFrames, Indexing methods, Slicing a DataFrame, Arithmetic methods with DataFrames, Reading and Writing Data, I/O API tools, CSV and Textual files, Reading Data in CSV or Text Files, Writing Data in CSV, Reading and Writing Data on MS-Excel Files
	Hands-on practice (90 minutes)		
Day 5	Session-1 (90 minutes)	Descriptive Analytics using Python	**Descriptive Analytics using Python** Loading a dataset into Pandas DataFrame, displaying records of the DataFrame, Value Counts and Cross Tabulations, Sorting values by columns, Creating New Columns, Filtering Records Based on Conditions, Summary measures
	Hands-on practice (90 minutes)		
	Session-2 (90 minutes)	Data Visualization using Matplotlib library	Exploration of data using visualization (Using **Matplotlib library**), Bar chart, Histogram, Distribution or Density Plot, Box Plot, scatter plot, pair plot, correlation and heat map
	Hands-on practice (90 minutes)		

PATRON

Prof. K.S. James, Director & Sr. Professor, IIPS

Workshop Co-ordinators

Prof. S.K. Singh
Prof. Laxmikant Dwivedi
Dr. Preeti Dhillon
Dr. Guru Vasishtha

For any queries, contact: vasishtha@iipsindia.ac.in

Resource Person:

Dr. Tina Dutta

Dr. Tina Dutta is Assistant Professor and FDP Coordinator in the School of Business at AURO University, Surat. By academic training, she is a statistician, a demographer and a social science researcher. She is a Fellow (PhD) from Indian Institute of Management, Calcutta. Dr. Tina has been actively involved in teaching, training and curriculum-development of subjects such as, Business Statistics, Quantitative techniques, Business Analytics, Econometrics, Time-series modeling and forecasting, Research Methodology, Data Science using Python, Data Analytics using Power BI, Operation Research, Value added courses on SPSS, and STATA.

Application link:

Workshop On "Introduction on Python Programming" (google.com)