Detailed Guide: Installing Python and Jupyter Notebook on Windows, macOS, and Linux

# 1. Installing Python

## A. On Windows

* Step 1: Download Python  
  Go to the official website: https://www.python.org/downloads/windows/ and click on the latest version to download the installer.
* Step 2: Run the Installer  
  Right-click the downloaded file and select 'Run as administrator'. Make sure to check 'Add Python to PATH'—this allows you to run Python from the command line. Click 'Install Now'.
* Step 3: Verify Installation  
  Open Command Prompt and run:  
   python --version  
   pip --version  
  This confirms both Python and pip are installed.

## B. On macOS

* Step 1: Check for Existing Python  
  Open Terminal and run: python3 --version. macOS includes Python 2.x, but you need Python 3.
* Step 2: Install Homebrew  
  Homebrew is a package manager for macOS. Install it by running:  
   /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
* Step 3: Install Python  
  Use Homebrew to install Python 3:  
   brew install python
* Step 4: Verify Installation  
  Run:  
   python3 --version  
   pip3 --version  
  This confirms installation.

## C. On Linux (Ubuntu/Debian)

* Step 1: Update Package List  
  Run: sudo apt update
* Step 2: Install Python & pip  
  Run: sudo apt install python3 python3-pip -y
* Step 3: Verify Installation  
  Run:  
   python3 --version  
   pip3 --version

# 2. Installing Jupyter Notebook

## Using pip (Recommended for All OS)

* Step 1: Open Terminal or Command Prompt.
* Step 2: Install Jupyter using pip:  
   pip install notebook
* Step 3: Launch Jupyter Notebook:  
   jupyter notebook  
  This will open Jupyter in your browser.
* Step 4: Stop the Server  
  Use Ctrl + C in the terminal to stop the notebook server.

## Optional: Install via Anaconda (Includes Jupyter)

* Step 1: Download Anaconda  
  Go to https://www.anaconda.com/products/distribution and download the installer for your OS.
* Step 2: Install Anaconda  
  Use the GUI for Windows/macOS or shell for Linux.
* Step 3: Launch Jupyter  
  Open Anaconda Navigator or use the terminal:  
   jupyter notebook

# 3. Summary Table

| OS | Python Install Method | pip Preinstalled? | Jupyter Install Command |  
|---------|----------------------------|-------------------|---------------------------|  
| Windows | .exe from python.org | Yes | pip install notebook |  
| macOS | brew install python | Yes | pip3 install notebook |  
| Linux | apt install python3 | Yes | pip3 install notebook |