To install the uv Python package manager on your Windows 11 laptop with Python 3.11.3 already installed, follow these steps:

1. Install uv Using PowerShell:

- **Open PowerShell with Administrative Privileges:**

  - Click on the **Start** menu, type PowerShell, right-click on **Windows PowerShell**, and select **Run as administrator**.

- **Run the Installation Script:**

  - In the PowerShell window, execute the following command:

    ```
    irm https://astral.sh/uv/install.ps1 | iex
    ```

  - This command downloads and runs the official uv installation script for Windows. (Astral Docs)

2. Verify the Installation:

- **Check the uv Version:**
  - After the installation completes, verify that uv is installed correctly by running:

    ```
    uv --version
    ```

  - This should display the installed version of uv.

3. Add uv to the System PATH (If Necessary):

- **Locate the Installation Directory:**

  - By default, uv is installed in the user's local binary directory. To ensure it's accessible from any command prompt, you might need to add it to the system PATH.

- **Add to PATH:**

  - Press **Win + X** and select **System**.
  - Click on **Advanced system settings**.
  - In the System Properties window, click on the **Environment Variables** button.
  - Under **User variables** or **System variables**, find and select the Path variable, then click **Edit**.
  - Click **New** and add the path to the uv installation directory, typically %USERPROFILE%\.local\bin.
  - Click **OK** to close all dialogs.

- **Restart the Terminal:**

  - Close and reopen your terminal or PowerShell window to apply the changes.

4. Integrate uv with Visual Studio Code (VS Code):

- **Open VS Code:**

  - Launch Visual Studio Code.

- **Install the Python Extension:**

  - Click on the Extensions icon in the sidebar or press `Ctrl + Shift + X`.
  - Search for "Python" and install the extension provided by Microsoft.

- **Set the Python Interpreter:**

  - Press `Ctrl + Shift + P` to open the Command Palette.
  - Type `Python: Select Interpreter` and select the Python 3.11.3 interpreter.

5. Create a "Hello, World!" Project Using uv:

- **Initialize a New Project:**

  - Open a terminal in VS Code.
  - Navigate to your desired project directory and run:

    ```
    uv init hello_uv_project
    ```

  - This command initializes a new Python project named `hello_uv_project`.

- **Navigate to the Project Directory:**

  - Change into the project directory:

    ```
    cd hello_uv_project
    ```

- **Create a Virtual Environment:**

  - Run:

    ```
    uv venv
    ```

  - This creates a virtual environment in the `.venv` directory.

- **Activate the Virtual Environment:**

  - On Windows, activate the virtual environment by running:

    ```
    .venv\Scripts\activate
    ```

- **Create the "Hello, World!" Script:**

  - In VS Code, create a new file named `main.py` in the project directory with the following content:

    ```
    print("Hello, World!")
    ```

- **Run the Script:**

  - In the terminal, ensure the virtual environment is activated, then run:

    ```
    python main.py
    ```

  - You should see the output: `Hello, World!`.

By following these steps, you've successfully installed uv, integrated it with VS Code, and created a simple "Hello, World!" Python project. For more detailed information and advanced usage, refer to the official uv documentation. ([Astral Docs](#))