

Quarto-Python-R Unified Environment Setup (Mac, Apple Silicon)

This document describes the full, reproducible setup process to ensure the **same Python/R environment** is available across: - **Terminal** - **RStudio** (via **reticulate**) - **VS Code** - **Quarto CLI** / **Notebooks**

1. Installation Overview

1.1. Install Mambaforge

```
curl -L https://github.com/conda-forge/miniforge/releases/latest/download/Mambaforge-MacOSX-  
bash mambaforge.sh
```

Follow the on-screen prompts. Once finished, restart your terminal and ensure:

```
conda --version  
mamba --version
```

2. Environment Setup

```
mamba create -n quarto-env -y \  
  python=3.11 \  
  jupyter \  
  ipykernel \  
  pyyaml \  
  numpy \  
  pandas \  
  matplotlib  
  
# Optional R support (recommended for RStudio + reticulate)  
mamba install -n quarto-env -y \  
  r-base \  
  r-irkernel \  
  r-reticulate
```

3. Environment Activation and Linking

```
source ~/mambaforge/bin/activate
conda activate quarto-env
```

4. Set Quarto Python for Global Use

Append to ~/.zshrc (done automatically by script):

```
export QUARTO_PYTHON="/Users/<your-user>/mambaforge/envs/quarto-env/bin/python"
alias update-quarto-env='conda activate quarto-env && mamba update --all'
```

Then:

```
source ~/.zshrc
```

5. Make it Available to RStudio (in R)

```
reticulate::use_condaenv("quarto-env", required = TRUE)
```

6. Reproducibility

6.1. Save environment

```
conda env export --name quarto-env > environment.yml
```

6.2. Recommended Git Structure

```
project/
  .Rproj                # Optional for RStudio users
  README.md             # Include this documentation
  environment.yml        # Exported conda environment
  notebooks/            # Python notebooks (e.g. .ipynb)
  analysis.qmd          # Main Quarto document
  figures/
  data/
```

7. Helpful Commands

```
conda activate quarto-env    # Enter environment
conda deactivate             # Exit environment
update-quarto-env           # Auto-updates packages (alias)
```

8. Notes

- **Do not use base** for development
- This setup is optimized for **Apple Silicon (M1/M2/M3)**
- For Quarto CLI: no extra config is needed if `QUARTO_PYTHON` is set