# Python Code Style

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## Base guide

The lab's Python style is an amendment of Google's Python style guide, read in the lab's fork at a pinned commit. Follow that guide for everything the amendments below do not change. Google's current wording is at google.github.io/styleguide/pyguide.html.

## Amendments

### Linting and formatting with Ruff

Ruff replaces the pylint configuration and the Pyink formatter that Google's guide mentions. It lints and formats in one tool.

- Lint settings live in the lab's `python/ruff.toml` in the `Morrison-Lab/psc` repository. Copy it to the root of a repository as `ruff.toml`.
- Line length stays at 80 characters, as in Google's guide.
- Docstrings follow Google's format.
- Rule families are pycodestyle, pyflakes, isort, pydocstyle, pyupgrade, bugbear, comprehensions and simplify.

CI runs the checks and fails on any finding.

### No nested function calls

The lab's no-nested-calls rule applies to Python. Give each intermediate result a name. Method chaining is fine. Ruff cannot check this rule, so it is not yet enforced.

### Figures with plotnine and plotly

Draw 2-D figures with plotnine, a Python implementation of the grammar of graphics. Its calls mirror the lab's `ggplot2` code, so a figure reads the same in R and in Python, and the lab's `qnp` theme carries over. Draw 3-D figures with plotly, because plotnine draws no 3-D graphics. Do not use Matplotlib directly for figures in new code. Name every argument, including those inside `aes()`, as the name-arguments rule says for R. Convert existing Matplotlib figures in their own PRs, not in unrelated ones.

## Planned work

- Run the checks through `Morrison-Lab/gha`'s `check-python-package` workflow in every repository that contains Python.
- Run `check-python-qmd-chunks` in every repository whose `.qmd` files contain Python chunks.
- Open an issue when upstream changes Google's guide.

These are tracked in #90.