



# INTRODUCTION TO QGIS

A SPECIALIST TRAINING COURSE

# Introduction to QGIS

Course outline: a specialist course

**Audience:** This is a course for people from various backgrounds. The focus is on data analysis and automation of day-to-day tasks.

**Overview:** QGIS is a powerful open-source tool for geospatial analysis. This course will provide an intensive hands-on tutorial in working with geospatial data using *QGIS*.

**Prerequisites:** Some familiarity and experience with GIS concepts and tools will be beneficial, but prior GIS experience is not required.

**Skills:** By the end of the course, you will have all the knowledge you need to work competently with *QGIS* for analysing and processing geospatial data and producing publication-quality maps.

**Duration:** 2 days

**Format:** Each topic is a mixture of hands-on exercises and expert instruction.

**Location and dates:** to be confirmed

**Instructor:** Henry Walshaw (see bio below)

# Topic outline

## Day 1: Basic geoprocessing with QGIS

Day 1 is a crash course in the basics of using *QGIS* for general geoprocessing tasks. The syllabus is:

- Setting up / installing *QGIS* (optional)
- Reading in spatial data (rasters and vectors)
- Managing different raster and vector data formats
- Projections in *QGIS*; specifying customized projections
- Producing publication-quality maps in *QGIS*
- Data editing:
  - Adding layers / editing layers
  - Coordinate geometry, bearings, and distances

# Topic outline

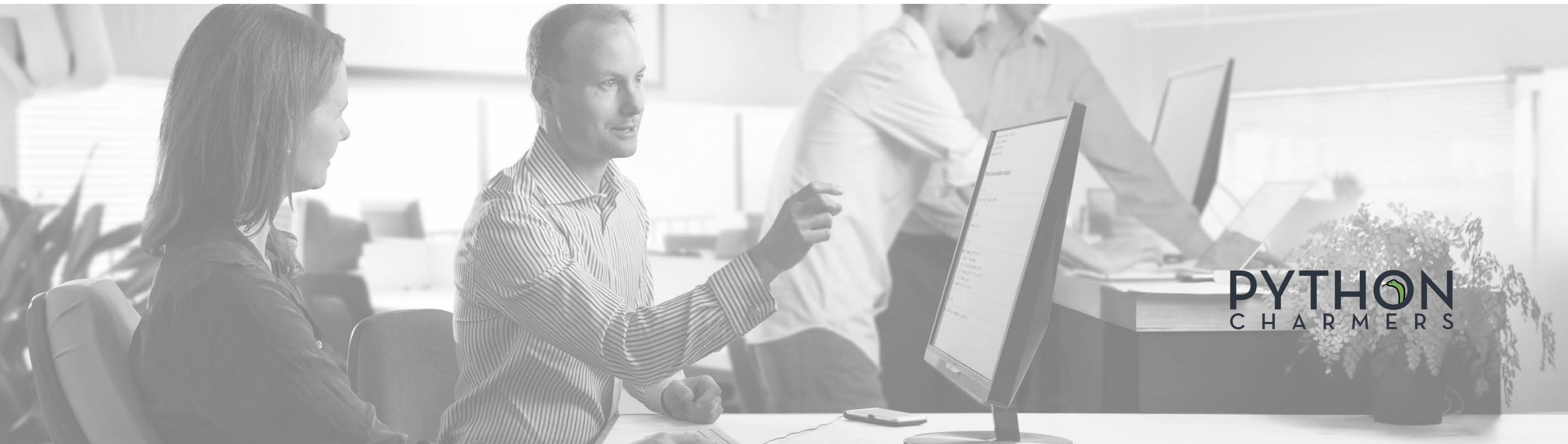
## Day 2: Extending QGIS

This day teaches you how to build upon the basics by using *QGIS* extensions to perform more advanced GIS tasks. The syllabus is:

- Advanced vector editing
- Using the *Raster Calculator*
- Georeferencing spatial data
- The *QGIS Processing* module: a visual tool for chaining processes
  - Finding and using tools
  - Extending *Processing* with third-party applications
  - Linking Processes together in a Model
- Working with *QGIS* extensions:
  - Finding and installing *QGIS* extensions
  - Extension configuration; enabling and disabling extensions
  - Key extensions in the *QGIS* ecosystem:  
*LRS; QuickMapServices; QPackage*

## Personal help

Your trainer will be available after each day for you to ask any one-on-one questions you like — whether about the course content and exercises or about specific problems you face in your work and how to use QGIS to solve them. We encourage you to have your own data sets ready to discuss if you wish.



**PYTHON**  
CHARMERS

## Other information

**Custom topics:** We would be happy to include any particular datasets or custom topics on request.

**Materials:** We will provide you with printed course notes, cheat sheets, and a USB stick containing kitchen-sink installers for multiple platforms, solutions to the programming exercises, several written tutorials, and reference documentation on QGIS and the extensions and tools covered in the course.

**Exercises:** There will be practical exercises throughout the course. These will be challenging and fun, and the solutions will be discussed after each exercise and provided as source code. During the exercises, the trainer(s) will offer individual help and suggestions.

**Timing:** The course will run from 9:00 to roughly 17:00 each day, with breaks of 50 minutes for lunch and 20 minutes each for morning and afternoon tea.

```
data, cmap='winter')
```

```
python3.7/site-packages/matpl  
cnis1- elementw comparison  
but the future will perfo  
str('ce')
```

**PYTHON**  
CHARMERS

# Instructor bio



**Henry Walshaw**

Henry has over 15 years of experience in data science and Python application development and has trained hundreds of people in how to use Python from organisations including AGL, the Bureau of Meteorology, CSIRO, DSTO, ESRI, Geoscience Australia, the NSW Department of Finance, Shell, and Telstra.

Henry's core technical expertise relates to the development and analysis of large scale spatial datasets (primarily using Python), and communicating this understanding to both subject matter experts and the general public.

Before joining Python Charmers, Henry worked in both government and industry — at Geoscience Australia, the Victorian Department of Sustainability and Environment, and the Environmental Protection Agency (EPA); as a consultant with Sinclair Knight Merz (SKM), a manager at we-do-IT, and as CTO of a startup. He holds a Bachelors in Computational Science with a major in geography.



**PYTHON**  
C H A R M E R S



### **About Python Charmers®**

Python Charmers is a leading global provider of Python-related training including QGIS, based in Australia and Singapore. Since 2010, Python Charmers has given over 450 training courses and bootcamps to around 4500 delighted people from organizations including AGL, Atlassian, Barclays, BHP, the Bureau of Meteorology, CSIRO, Cisco, Deloitte, Dolby, GDF Engie, Geoscience Australia, pwc, Singtel Optus, Shell, Snowy Hydro, Sportsbet, Telstra, Toyota, Verizon, Westpac, and Woolworths. Python Charmers specializes in teaching programming and data science to scientists, engineers, data analysts, spatial analysts, quants, and computer scientists in the Python language.

Python Charmers' trainers boast years of experience and Python, GIS, scientific computing, and machine learning, and deep roots in the open source community, as both speakers at events and contributors to well-known open source projects.

**Testimonials:** Testimonials from past participants of our training courses are available at

<https://pythoncharmers.com/testimonials/>

**Questions:** We are happy to customise this program further on request. Please let us know if you would like to discuss this or have any other questions.

**Contact:**

Phone: +61 1300 963 160

Email: [info@pythoncharmers.com](mailto:info@pythoncharmers.com)

Web: [pythoncharmers.com](http://pythoncharmers.com)

The logo for Python Charmers, featuring the word "PYTHON" in a large, bold, sans-serif font, with a small green Python snake icon integrated into the letter "O". Below "PYTHON" is the word "CHARMERS" in a smaller, all-caps, sans-serif font.

PYTHON  
CHARMERS



PYTHON  
CHARMERS