# Tutorial: Advanced Rcpp Usage

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**Keywords:** *R*, *C++*, Programming, Interfaces

**Topic:** This tutorial will provide a hands-on introduction to more advanced **Rcpp** features.

We intend to cover topics such as

- writing packages that use **Rcpp**,
- how to use *Rcpp modules*, and how the *R*, *ReferenceClasses* interact with *Rcpp modules*
- how *Rcpp sugar* lets us write *C++* code that is close to *R* code in its expressiveness and use of implicit vectorisation, yet runs at the speed of compiled code,
- using the **RInside** package to embed *R* code in *C++* applications.

**Prerequisites:** Knowledge of *R* as well as general programming knowledge; prior *C++* knowledge may be helpful as well.

**Equipment:** Users should bring a laptop set up so that *R* packages can be built. That means on Windows, the **Rtools** bundle needs to be present and working, on OS X the **Xcode** package should be installed, and on Linux things generally just work. We can provide limited assistance in getting the required tools installed but the focus of the tutorial on how to use them.

## References

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[3] Eddelbuettel, D. and R. François (2012). *RInside: C++ classes to embed R in C++ applications*. R package version 0.2.6.