**Title:** Machine Learning with R

**Description:** Learn the fundamentals and application of modern machine learning tasks. This course will cover unsupervised techniques to discover the hidden structure of datasets along with supervised techniques for predicting categorical and numeric responses via classification and regression. Techniques that will be covered will likely include:

* Unsupervised
  + Principal Components Analysis
  + Clustering
* Supervised Regression Techniques
  + Model validation
  + Linear regression and its cousins
  + Nonlinear regression
  + Regression trees
* Supervised Classification Techniques
  + Model validation
  + Linear classification models
  + Nonlinear classification models
  + Classification trees

Learn how to process data for modeling, how to train your models, how to visualize your models and assess their performance, and how to tune their parameters for better performance. The course emphasizes intuitive explanations of the techniques while focusing on problem-solving with real data across a wide variety of applications. This is a hands-on course so bring your laptop!

**Intended Audience:** This course is intended for academics and data science practitioners who wish to learn about machine learning tasks as well as a guide to applying them. Readers should have knowledge of basic statistical ideas, such as correlation and linear regression analysis, along with intermediate R programming skills.

**Bios:** Brad Boehmke, PhD and Brandon Greenwell, PhD are Senior Data Scientists that provide advanced healthcare analytics for Ascend Innovations. They have taught at the graduate level for statistics and business analytics programs at University of Cincinnati, Wake Forest University, Wright State University, and Air Force Institute of Technology. They have provided professional analytics and R consulting services for companies such as P&G, 84.51°, Emerson, and others. Between them they have over a dozen publications in leading analytic journals, six R packages developed, and a book (*Data Wrangling with R*) published in Springer’s UseR! series. They are currently working on a book (*Advanced Analytics with R*) to be published in CRC’s The R Series in early 2019.