**R Shiny for Operations Management**

* Day/Time: Mon 10am-1:00 pm
* Location: Virtual

**Instructor information**

* Name: Geoffrey Arnold
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**Course Description**

This course will teach students to generate interactive websites including GIS maps and other data visualizations and reports using the R programming language. The course will focus on RStudio’s Shiny web application framework for creating interactive web applications, and the Leaflet library package for mobile-friendly interactive maps. This course builds directly from its prerequisite course, Programming R for Analytics course, and offers students a chance to build skills that will be marketable in both the public and the private sectors. Students will learn to load data from a variety of sources and formats for use in interactive web interfaces that can provide real-time information, including Rest APIs.

**Course Relevance**

Business Intelligence is a growing and dynamic sector. Shiny apps allow students to build comprehensive and powerful Dashboards and other kinds of web applications that can be used at firms with a variety of infrastructure.

Students will walk away from this course with at least 3 functioning examples of their achievements that they can show and demonstrate to both current and future employers.

**Course Goals**

Students will walk away from this course with at least 3 functioning examples of their achievements that they can show and demonstrate to both current and future employers.

**Learning Objectives**

* Use R to generate interactive charts, maps, tables and graphs.
* Create, develop and deploy R Shiny web applications.
* Customize the appearance of Shiny applications using Shiny and CSS.
* Use Web API’s and DB Connectors to get data into Shiny applications.
* Use Human Centered Design principles.
* Use git and versioning to save, revert and troubleshoot code.

**Learning Resources**

* Course Materials will be distributed by the Minneapolis Federal Reserve. This includes lecture slides
* There is no required text for this course, but supplemental websites and materials will be provided in addition to course lectures.
* Students can use data from any source for the optional assignments, but these websites are good places to get started:
  + <http://www.wprdc.org/>
  + <https://data.world/>
  + <https://www.data.gov/>
  + <https://www.census.gov/data.htm>
  + <https://datasf.org/opendata/>
  + <https://data.cityofchicago.org/>

**Optional Assessments**

There are two optional assignments that will be provided to students that will test their familiarity with the course material, but plenty of in-lecture time is dedicated to the specifics of coding shiny applications.

**Course Schedule**

* Class 1 - 7/8 - Course Overview & Introduction to Shiny
* Class 2 - 7/15 - Reactive Programming & User Interfaces
* Class 3 - 7/22 - Reactive Programming Pt. 2 & Dashboards
* Class 4 – 7/29 - Interactive Visualizations & Advanced Reactivity
* Class 5 - 8/5 – Modules & Bookmarking
* Class 6 - 8/12 - Connecting to Databases & API's
* Class 7\* - 8/19 - Leaflet & LeafletProxy
  + Optional class