Training Overview

Introduction

RMDS Learning platform is part of the RMDS ecosystem where we develop practical courses based on our RM4E technologies. We invite professional experts in our community to design high-quality content relevant to data science and analytic workflows with an emphasis on real-world problem-solving scenarios and use cases. Our learning platform is not only generating knowledge for data science learners but also helping them to establish close rapport with an experienced mentor that prepares them for the career transformation.

We offer three kinds of training:

1. Online courses: *grmds.org/learning*
2. On-site training
3. Certificate programs

Course Catalog

1.Course Name: RM4E Analytics workflow (Category: Data Science)

Overview:
This course on analytic workflow is based on the innovative research methodology promoted by Dr. Alex Liu, namely, RM4Es. It contains four important components: equation, estimation, evaluation, and explanation. The course will give participants a detailed illustration on how these four components may be combined together to guide different types of data analysis projects (e.g., spatial data, China data). The course will also cover useful techniques in data preparation and processing based on different types of data, varieties of machine learning models, and how to use the workflow mindset to optimize the results of data analysis.

Module:

- Introduction to RM4E
- Open data portal
- Data preparation and processing
- Intro to machine learning
- Summary of analytical workflows

2.Course Name: Big data and AI to improve competency and employability

Overview:
This practice-oriented 6-week course is suitable for those who are interested in applying data science to solve business problems. We will not only teach you about the basic knowledge and skills(e.g., R

programming, Python) but also about how to utilize them in the real-world settings to solve a business problem. In this course, you will be provided with a very useful data analytic workflow -- 4Es to guide the problem-solving process and be exposed to various cases where you will understand how different approaches may be adopted to solve different problems.

Module:

- 4Es introduction
- Data sources and data preparation
- Researchmap and reproducible research
- Turning business problems to data science problems
- Building models with data
- Explaining results and executing insights

3.Course Name: Regression Analysis (Category: Data Science)

Overview:

The course is a friendly and step-by-step model-building guide to anyone who plans to use regression for conducting any kind of high-quality empirical research. Throughout the course, many real research examples have been used to demonstrate all the important regression modeling techniques and to keep students updated of the most current applications. Many of these examples are taken from articles published in leading journals such as the American Economic Review and the American Political Science Review.

This course is not written for people who just want to think about or to talk about regression modeling. It is for these students and practitioners who need to use regression to analyze some real data and to produce some insightful research reports. Students who completed the course or training should be able to use SPSS or R to analyze their own datasets to produce high-quality regression models.

Module:

- Introduction to modeling and the RM4Es framework
- Dealing with data issues in regression
- Dealing with equation issues in regression
- Dealing with estimation Issues in regression
- Dealing with evaluation issues in regression
- Using regression to solve the problems--explanation issues

4.Course Name: China Data Analysis (Category: Data Science)

Overview:

This course prepares students to gather, describe, and analyze country-level data, which may help students to gain insights on the economic, political and social development of a country. In addition, data visualization is an essential skill required in today's data driven world. Practitioners in almost every field use visualization to explore and present data. In this class, we will also introduce and practice visualization analysis by using R studio.We require the R Statistical Software, which is powerful and free.

Module:

- Introduction to CDI and other data
- Data preparation and introduction to workflow
- Workflow of the changes in proportions financial institutions
- Workflow of the changes in financial institutions in a map
- Workflow for score system and more

5. Course Name: Spatial Data Analysis (Category: Data Science)

Overview:
This course is designed around geospatial data modeling, analytics, and visualization. Creating geospatial solutions allows traditional business analytics to be supercharged with a geographic component, driving real time insights into operations and systems. With a focus on applications of geographical information sciences using open source tools, the program provides the knowledge and skill set needed to address major challenges faced by our nation and planet.

Following the innovative research methods of RM4E and ResearchMap, we will resolve the complexities of working with spatial data. This program will be an interactive learning experience with mathematics, workflows, code, and discussions in which concepts and techniques are developed and implemented with real data sets from multiple disciplines.

Module:

- What is spatial analysis
- Basic concepts in spatial analysis
- Introduction to spatial representation-maps
- A case study of spatial analysis--how to make a map using R
- Case study continue--how to do some spatial analysis

6. Course Name: Business Analytics (Category: Data Science)

Overview:
This course is aiming to introduce the tools used for analytics. It will mostly focus on telling the theorem of common machine learning models with application in real cases. The language being displayed in the course is R but the same idea applied in other languages such as Python and Java.

Module:

- Stepping into business analytics with linear regression
- Logistic regression
- K-NN and confusion matrix
- Decision tree
- Random forest and clustering
- Application of business analytics

7. Course Name: Neural Network (Category: Artificial Intelligence)

Overview:
This course is to introduce you with the basics of neural network. You can learn the essential concepts underlying neural network and have a command of how to apply the algorithms in the real-world scenarios.

Module:

- Introduction of neural network
- Multilayer perceptron
- Recurrent neural network
- Long short-term memory
- Convolutional neural network

8. Course Name: Ethics and Artificial Intelligence (Category: Artificial Intelligence)

Overview:
This course will focus on providing educational content regarding the current central ethical, social, and legal issues behind artificial intelligence. The curriculum will take an interdisciplinary approach to understanding these issues by employing literature and ideas from fields such as cognitive science, philosophy, sociology, and psychology.

Module:

- Moral concerns over the development of artificial intelligence
- Theological views on the development of artificial intelligence
- Spot the bias--recognizing effects and ethical issues of biased artificial intelligence
- Cut the bias--practical methods for addressing biased artificial intelligence
- Social issues regarding artificial intelligence
- Legal issues behind artificial intelligence