

AI 854 Data Analysis and Visualization (3, 0)

Pre-requisite: None

Recommended Books:

1. Data Analysis and Visualization Using Python: Analyze Data to Create Visualizations for BI Systems, Dr. Ossama Embarak, Apress, 2018.
2. Python: Data Analytics and Visualization, Phuong Vo.T.H, Martin Czygan, Ashish Kumar, Packt Publishing, 2017.
3. R: Data Analysis and Visualization, Tony Fischetti, Brett Lantz, Jaynal Abedin, Hrishu V. Mittal, Bateer Makhabel, Edina Berlinger, Ferenc Illes, Milan Badics, Adam Banai, Gergely Daroczi, Packt Publishing, 2016.

Credit Hours: 3 (3, 0)

Course Objectives:

- To be able to design and critique different visualizations.
- To appreciate the importance of data analytics for visualization.
- To understand the components involved in visualization and also how different data types impact visualization.

Topics / Contents	Allocated Periods
The course covers topics such as data processing and big data, data understanding, data preparation, modeling, evaluation, and analytic techniques. Regarding data the topics included are importance of context, audience's and model vis attention, dissecting uals. Predictive modeling includes topics such as linear regression, classification, and clustering. Topics covered related to modeling include overfitting, generalization, plain accuracy and its problems, confusion matrix, unbalanced classes, and unequal costs and benefits. Topics related to	45
visualizing model performance include ranking, ROC graphs and curves, and AUC. Other topics include visual encoding, bar chart and pie chart, line chart, highlight tables, scatter plot and trend lines, heatmap, geographic mapping, bullet graph, Gantt chart, and circle view. It also includes table calculation, forecast, log distribution, reference line and table.	