GENERAL INFORMATION:

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- Office Hours:
  o By appointment: http://www.calendly.com/paulette-cma
  o MW, 12noon-1:30pm, CoBA Third Floor Calc Lab
  o TR, 10:30am-12noon, CoBA Third Floor Calc Lab

CLASS DETAILS:
- TR 09:00am-10:20am; CoBA 311

COURSE DESCRIPTION:
Overview of the process of data analysis. Data analytics have moved out of the academic world of statisticians to the practical world of technology. A variety of user friendly technologies bring powerful analytical capabilities to end users. Three major areas that comprise analytics are reporting, visualization and prediction. This course uses the latest in technology to show the practice of data analytics in the real world. You will experience practical applications of analytics through guided exercises and case studies.

COURSE OBJECTIVES:
Data analytics has become a highly sought after skill in business, engineering, economics, government, services, science, health care and other domains. This course will explore the technology and practice of data analytics.

After completing the course, students will be able to
- Analyze data to generate information and knowledge that lead to informed decisions for businesses
- Author enterprise dashboards that are used to summarize and visualize data in a way that supports insight into trends and “what-if” analysis in real time.
- Show how business intelligence can be derived from data warehouses
- Create standard reports for business users
- Derive insightful trends using data mining techniques
- Apply the latest in analytics technology in real world case studies in the areas of business, entertainment, climate change etc.

PREREQUISITES:
- Basic computer literacy
- An introductory course in information technology covering information systems, internet, technology-enabled business, spreadsheets, databases, digital representation of data, basics of hardware and software, and business processes.
- Basic skills in Microsoft Excel – working with tables, formulae, sorting, filtering and charting
- Introductory course on statistics
Course Outline

Module 1 – Course Introduction
Course objectives and outcomes
Making the case for analytics
Data driven decision making
Introduction to data analytics

Module 2 – Slicing and Dicing
Basics of slicing and dicing
Pivot tables
Working with aggregation functions, hierarchies
Exceptions and conditions
Slicing and dicing multidimensional data (from cubes)

Assignment: Answer business questions by slicing and dicing multidimensional data from a data warehouse data source.

Module 3 – Reporting
What are reports? Where are they used?
Building reports from one or more data sources
Formatting reports
Creating summaries

Assignment: Create a formatted report based on live financial data (from SAP ERP) using SAP Crystal reports. Use SAP Crystal Reports to connect to a data warehouse, then author a monthly report that show the accounts receivables from customers.

Module 4 – Data Visualization: Basic Charts
Visualization as a powerful tool for analytics
Types of charts
How to choose the right chart for displaying data
Multi variable data display

Assignment: Use data visualizations to gain insights into team performance from the ERP Sim business simulation.

Module 5 – Dashboards:
What are dashboards, cockpits, scorecards?
How to author dashboards?
Adding interactivity
Deploying dashboards
Mobile Apps for Analytics

Assignment: Model and implement a dashboard for key performance indicators for a company. Build an analytics mobile app based on data from a data warehouse. Test it on your mobile device.

Module 6 – Advanced Visualization:
Advanced chart types
Infographics: How to tell a data driven story
Mashups

Assignment: Build an infographic based on data of your choice. Infographic should communicate findings in a compelling way.

Module 7 – Knowledge Discovery
Data mining
Accuracy in data mining
Data mining process
Machine learning
Descriptive vs. predictive analytics

**Module 8 - Descriptive data mining**
Models for descriptive data mining
Clustering
Association analysis

**Module 9 - Predictive data mining**
Models for predictive data mining
Regression
Decision trees
Classification
Forecasting, time series analysis

**Module 10 - Big data: Hype or helpful?**
What is big data?
Challenges and promises of big data
Limitations and missteps of big data

**Module 11 - Analytics in the Decision Cycle**
How does data analysis support decision making?

Assignments:
- Use SAP Predictive Analytics to model a data mining process from data acquisition to model validation.
- Use SAP Predictive Analytics to analyze various real world scenarios.
- Analyze the multibillion row database from Walmart provisioned by University of Arkansas.
- Research a big data use case.
- Use skills from the previous 13 chapters to analyze data and make recommendations to improve business operations.