

## Elective Course “**Data Analysis: Visualization and Dashboard Design**”

**Abstract:** If you are looking to enhance your efficiency in the office and improve your performance by making sense of data faster and smarter, then this advanced data analysis course is for you. If you have already sharpened your spreadsheet skills in EX101x Data Analysis: Take It to the MAX, this course will help you dig deeper. You will learn advanced techniques for robust data analysis in a business environment. Most techniques will be taught in Excel with add-ons and free tools available online. We encourage you to use your own data in this course but if not available, the course team can provide

**Learning Objectives:** This course will open up the Internet and show you how it was created, who created it and how it works. Along the way we will meet many of the innovators who developed the Internet and Web technologies that we use today.

**Learning Outcomes:** We will learn, how to make data come to life with well-known types of visualizations such as line and bar graphs and new types of visualizations such as spark lines, contour plots and population pyramids. How to create dashboards in Excel based on live data that can meet managerial and business needs. How to connect data from different sources, such as the web and exports from your CRM, ERP, SAP or data warehouse. Some hands-on data science and how to use actionable analysis tools. Deep dive into known tools like PivotTables and introduce new ones like the analysis toolpak.

### **Plan:**

- a. Importing Data (import) In this week we will show you how to get data ‘live’ into your spreadsheet. Never copy-paste again.
- b. Power Up (analysis, visualization, design)
- c. PivotCharts (analysis, visualization)
- d. Decision Making (analysis)
- e. Testing (analysis)
- f. Dashboard (Design) Now we know different types of visualization, we can put it all together in a beautiful dashboard. We will create a dashboard based on real-time data of a specific domain. Technology: Transport Control Protocol (TCP)
- g. Final Exam

**Reading List:** Bonneau G.-P., Ertl T., Nielson G. M. (2006) Scientific visualization: the visual extraction of knowledge from data. Berlin; Heidelberg: Springer-Verlag.

Banks M. (2007) Using visual data in qualitative research / M. Banks. – Los Angeles [etc.]: SAGE Publications.

**Grading System:** 80% Cumulative Grade +20% Exam

**Methods of Instruction:** Video lectures