WF ED 540, DATA ANALYSIS, FOR FALL SEMESTER 2016

Completion of WF ED 540, Data Analysis in WF ED, or STAT 500, Applied Statistics, is a Workforce Education & Development academic program requirement for all graduate students in WF ED.

WF ED 540 focuses on selected processes in applied data science, which is “the study of the generalizable extraction of knowledge from data”\(^1\). The course involves:

- **Importing** data so that it can be rendered useful for analysis.
- **Tidying and transforming** imported data so that it is refined for visualization and modeling.
- **Visualizing and modeling** tidied and transformed data. Visualizing data underscores and reveals patterns and trends that the data represent. Modeling the data uncovers relationships between outcome variables of interest and variables that explain and predict those outcome variables.
- **Communicating** the knowledge gained from analyses of imported and refined data through print and non–print reports that are targeted to the information needs and preferences of various audiences.

A document at [http://www.personal.psu.edu/dlp/Taxonomy_of_WF_ED_540_Skills.pdf](http://www.personal.psu.edu/dlp/Taxonomy_of_WF_ED_540_Skills.pdf) contains (a) a display of the flow of data science through phases of collection, analysis, and communication of data, (b) the prerequisites for learning data science in WF ED 540, and (c) a taxonomy of knowledge/skills developed in WF ED 540 to perform data science.

Class meetings occur weekly during Fall Semester 2016 on Tuesdays from 23 August 2016 through 13 December 2016, except on 24 November 2016 (date of official University holiday on which Penn State class meetings are not held), starting promptly at 6:00 pm and ending by no later than 9:00 pm. Face–to–face, “live” participation in class meetings is possible, as is participation from a remote location using online video conferencing (although the first class meeting is face-to-face on the University Park Campus).

Requirements include completion of quizzes, a mid-term examination, and a final examination. PhD students must complete an abbreviated research paper, which is an optional course product for master’s or baccalaureate degree students.

Additional details are available in the course syllabus which starts at [http://economywork.com/courses/data](http://economywork.com/courses/data). The official syllabus for WF ED 540 for Fall Semester 2016 will be available by 22 August 2016. The syllabus posted currently is mostly complete, but the course calendar is yet to be finalized with course content information. Other minor changes in the current syllabus materials might occur.

Questions? Contact David Passmore at dlp@psu.edu.

---

\(^1\)Dhar, V. (2013). Data science and prediction. *Communications of the ACM*, 56(12), 64–73.