An introduction to an Introduction

PSY544 – Introduction to Factor Analysis

Week 1

First off.....English!

- This course is taught in ***English*** (yay!) – for many reasons
- All lectures, all homeworks, all e-mails, the exam...
- Even though I do speak Czech, please no Czech in class or in your coursework
- Am I too fast? Am I too slow? Do I mumble? Do I sound funny? Tell me.

Course logistics

- Lecture times are Mon (U44) + Wed (U43), 18:00 – 18:50
- 4 credits

Course logistics

- No official requirements, but…
- At least an elementary stats course (correlation, linear regression, partial correlation, multiple regression)
- Some knowledge of R is great (we'll need it later on, you have time)
- If you're not so sure, please catch up/refresh

Course logistics

- Math!
- We will learn a bit of matrix algebra, it’s EASY (might be a review for some of you)

- But yes, this course will be more math-y than most PSYCH courses. Don’t worry, even if you think you suck at math.

Course logistics

Requirements:

- Participation (will be somewhat monitored, no strict rules…for the moment ☺)
- Homework (three short homework assignments, 20% of grade)
- Exam (take-home, 40% of grade)

Grading criteria in the syllabus

Course logistics

- Academic misconduct – **no** copying, **no** teamwork on assignments, **no** plagiarism. Pretty please.

Course materials:

- Notes (presentations) will be given ahead of time, bring them if you wish
- No other material is necessary, but feel free

Course logistics

A slightly “different” course. Relatively speaking:

- More frequent
- More frontal
- Less time spent on assignments
- NO group projects (does anyone even like those?)
- Narrower scope, but more in-depth

Any questions?

- Please don’t tear me apart

Course content

First:

- Factor analysis at-a-glance
- Definition and review of key terms, ideas and concepts
- A bit of history (a very tiny bit)
- Scalars, vectors and matrices
- Basic vector and matrix operations and functions

(Assignment 1)

+ Review your Greek / Γρεεκ ☺

Course content

Second:

- The model (The *Unrestricted [Exploratory] Common Factor Model)*
- The methodology (Fitting the model, Estimation, Rotation, Fit)
- The software! (CEFA)

(Assignment 2)

Course content

Third:

- Still the same old model (The *Restricted [Confirmatory] Common Factor Model)*
- The methodology (Constraints, Identification, Fit)
- The software! (lavaan)

(Assignment 3)

Course content

Further (if time permits):

- Special topics and „extras“

Course objectives

- At the end of the semester, you will:
    - Have a solid understanding of the theory behind EFA and CFA
    - Become an informed data analyst when performing FA
    - Be able to use major software for EFA and CFA
    - Be able to interpret and communicate EFA and CFA results
    - Be able to evaluate other people's work