Faculty of Industrial Engineering and Management Technion–Israel Institute of Technology

(098603) איסוף נתונים ומחקר במדעי ההתנהגות
Data Collection and Research in Behavioral Sciences (098603)

Lectuer: Prof. Eldad Yechiam	TA: Daniel Ben-Eliezer
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The course will provide basic tools for running experiments and analyzing data in the behavioral Sciences. Its basic theme is to provide a toolbox of computer-mediated experimental methods for data collection (e.g., decision making tasks, cognitive performance, meta-analysis, big data collection) and relevant statistical tests. It will also include discussion regarding various aspects of doing research in behavioral sciences, emphasizing the relative advantage of different analysis techniques. For requiring the relevant basic skills, students will acquire the programming language Python and the SPSS software. The course project will involve the conduct of a meta-analysis.

Grade

35% - Exam in Python
50% - Exam in statistical analysis
5% - Submitting homework (timely, full)
10% - End of semester home assignment (results!)

Recipe for success:

- **Attendance in all meeting**
- **Completion of material when necessary.**

Prior Requirements

Basic knowledge in statistics, Knowledge of Excel

Material

Online movies on SPSS (RStatsInstitute) :
Introduction: https://www.youtube.com/watch?v=ADDR3_Ng5CA
Frequencies: https://www.youtube.com/watch?v=4CWeHF3Mn00

Descriptive: https://www.youtube.com/watch?v=c4mGKguUnvc

Material (elective): Any introduction to visual basic and Excel

Lecture topics (NOT UPDATED Will be updated):

Exercise	Lecture		תאריך	Week
	Introduction, Visual basic: Objects (properties), code, variables, msgbox, changing properties in run mode		27.10	1 (Eldad)
	Visual basic: Control structures : If then, subroutines, working with time, debugging		3.11	2 (Eldad)
	Visual Basic: Control structures: Loops, vectors and matrices		10.11	3 (Eldad)
	Visual basic for applications: Using visual basic for data analysis (in Excel), Visual basic in email questionnaires (in Outlook)		17.11	4 (Eldad)
	Eye tracker and physiological arousal: Principles, manual operation, Programming Operation (+VB rehearsal)		24.11	5 (Daniel)
	Event related potentials		1.12	6 (Daniel)
	Targil	Lecture		
	Introduction to SPSS	Test	8.12	7
	SPSS: Paired tests One way ANOVA Post-hoc tests Repeated measures	VBA & Excel: Comparing averages, variances, skewness and curtosis, Bootstrapping	15.12	8
	SPSS: Non parametric tests for comparing groups and correlations SPSS: Non-paired: Mann-Whitney U Kruskal-Wallis	Statistical vs. practical significance Statistical power (Gpower)	22.12	9

	Paired Mcnemar, Wilcoxon, Sign test			
	SPSS: Two way ANOVAs Interactions, post-hocs	Multiple items: Reliability, factor analysis Three way, statistical power,	**5.1**	**10**
	Regression, logistic	Multiple items: Reliability,, factor analysis, regression 1	**12.1**	**11**
	Meta-analysis 1	Regression 2, Meta-analysis, summary of knowledge	**19.1**	**12**
	Meta-analysis 2	Presentation of end-of-semester home assignment	**26.1**	**13**