

School of Psychology

Name of the module: Introduction to Statistics

Lecturer: Dr. Yaniv Kanat-Maymon

Number of the module: 8004

IDC Herzliya Credit Points: 7

ECTS: 13.5

Cycle: first cycle

Academic year: 2011-2012

Semester: Yearlong module

Field of Education: Psychology

Position in Educational system: The module is given as a mandatory module to first year students in the international psychology BA program.

Hours and Location of instruction: 1st Semester: Monday, 14:00-15:30, room L201
2nd Semester: Monday, 10:15-11:45, room E302

Hours and Location of Recitations:

1ST semester – Wednesday, 12:15-14:45, room S.4 library (Ohad Szepsenwol, Phd)

2ND semester - Tuesdays, 08:30-11:00, room A107

1ST semester – Wednesday, 12:15-14:45, room S2 library (Moran Aliman, Phd)

2ND semester - Tuesdays, 08:30-11:00, room S2 library

1ST semester – Wednesday, 12:15-14:45, room A319 (Michal Kanat-Maymon)

2ND semester - Tuesdays, 08:30-11:00, room A319

Contact details and Office hours: ykanat@idc.ac.il, Monday, 13:00-14:00

Teaching Assistant, contact details and Office hours:

Ohad Szepsenwol, PhD, ohad.sheps@gmail.com, Wednesday 15-16


Moran Aliman, PhD, moranstudents@gmail.com, Thursday 10-11


Michal Kanat-Maymon, k.m.michal@gmail.com, Wednesday 9-10

Language of instruction: English

General prerequisites: None

Course description:

 Aims of the module: This course is designed to develop basic skills and understanding of quantitative data analysis.

 Objective of the module: The goal is to provide you with conceptual understanding of basic analysis techniques and with practical tools for conducting rudimentary statistical analysis. You will also participate in weekly recitation sessions, in which lecture materials will be reviewed and practiced, and training with the SPSS statistical software will be provided.

 Learning outcomes of the module: Upon completion of this course, the student will be able to:

- Understand the conceptual and practical aspects of various analyses technique.
- Formulate research hypotheses.
- Choose the correct analysis given certain research hypotheses.
- Differentiate the various analyses techniques and evaluate their advantages and disadvantages.
- Read and interpret results sections in scientific journals.

Attendance regulations: Mandatory attendance in recitations and lectures (at least 10 out of 13, each semester). Full attendance at lectures and recitations will be calculated as 10% of the final grade.

Teaching arrangement and method of instruction:

A weekly lecture in front of the whole class is followed by a weekly recitation in small groups.

You will need a calculator for each class. An inexpensive one will be sufficient; no mathematical functions beyond a square root are needed.

SPSS lessons will be held in computer labs.

All lectures, assignments, materials and handouts are available through the course website.

You will be tested on everything covered in lectures, recitation sessions, and assignments.

Schedule and outline:

| Week | Subjects |
|--------------------------|---|
| Semester A | |
| 1 | Introduction – population, sample, variable, correlation, causality, research designs |
| 2-3 | Scales of measurement, transformations, aggregated scores, tables, charts, shapes of distributions |
| 4-5 | Sigma laws, central tendency indices: mean, median, mode, mid-range; effect of transformations |
| 6-7 | Dispersions indices: range, inter-quartiles range, variance, standard deviation; effect of transformations |
| 8 | Relative position measures: percentiles, Z score |
| 9 | The normal distribution |
| 10-12 | Correlation coefficients: Cramer, Spearman, Pearson; the effect of linear transformations |
| 13 | Summary: descriptive statistics |
| Semester B | |
| 1-2 | Sampling methods, the sampling distribution, random sample, central limit theorem |
| 3-5 | Hypothesis testing (one-tailed and two-tailed), type I & type II errors (α, β), power, effect size, a priori and a posteriori alpha, one sample Z test |
| 6-7 | One sample T test; biased (S) and unbiased estimation (\bar{x} \hat{S}) |
| 8-10 | Independent and dependent samples t-test |
| 11-12 | One-way Analysis of Variance (ANOVA), Post-hoc tests |
| 13 | Summary: inferential statistics |
| Semester B - SPSS | |
| 1 | Introduction to SPSS |
| 2 | Compute |
| 3 | Recode |
| 4 | If |
| 5 | Frequencies and Descriptives |
| 6 | Split file, Select cases |
| 7 | One sample t-test |
| 8 | Independent samples t-test |
| 9 | Paired samples t-test |

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|----|------------------|
| 10 | Summary: t-tests |
| 11 | Correlations |
| 12 | ANOVA |
| 13 | Summary |



Assessment:

Final score:

- 10% (5×2%) - Mandatory attendance in recitations and lectures (at least 10 out of 13, each semester)
- 10% (3% Semester A+ 4% Semester B + 3% SPSS) - Weekly homework assignments: passing grade on at least 9 out of 12 assignments (each semester).
- 15% - Six quizzes (3 each semester). The quiz grade will be calculated as the average of the top 5 grades.
- 20% - Semester A final exam.
- 20% - SPSS exam (semester B).
- 25% - Semester B final exam.

Quizzes:

| Quiz no: | Semester | Week | Date |
|----------|----------|------|------------|
| 1 | A | 6 | 7.12.2011 |
| 2 | A | 8 | 21.12.2011 |
| 3 | A | 10 | 4.1.2012 |
| 4 | B | 4 | 27.3.2012 |
| 5 | B | 7 | 1.5.2012 |
| 6 | B | 11 | 29.5.2012 |

Dates of final exam:

1st semester – 10.02.2012

Second term for the final test – 23.03.2012

2nd semester – 16.07.12

Second term for the final test – 22.08.2012



Work and assignments:

Your weekly homework assignment needs to be submitted to the paper-room by Monday at 13:00.

Otherwise the homework will not be graded. Passing grade is required on at least 9 out of 12 assignments (each semester). The overall weight of the homework assignments is 10% of the final grade (3% Semester A+ 4% Semester B + 3% SPSS).



Time required for individual work:

Lecture attendance: 1.5 hours per week x 26 weeks =39

Recitation attendance (statistics) – 2.5 hours per week x 26 weeks =65

Recitation attendance (SPSS) – 1.5 hours per week x 13 weeks =19.5

Homework assignments (statistics) - 2 hours per week x 24 weeks = 48

Homework assignments (SPSS) - 1 hours per week x 12 weeks = 12

Study for the Quizzes – 8 hours per quiz x 6 quizzes =48

Study for the statistics exams – 40 hours per exam x 2 exams =80

Study for the SPSS exam – 15 hours per exam x 1exam =15

Taking the statistics exams - 3 hours per exam x 2=6

Taking the SPSS exam - 3 hours per exam x 1=3

Total amount of hours required: 335.5 hours.

Literature:

Gravetter, F.J., & Wallnau, L.B. (2008). Statistics for the Behavioral Sciences (7th edition). Wadsworth, Thomson Learning.

Additional Information:

Disturbing the class by making noise or other disruptions *will not be tolerated*. It is an infringement of the rights of other students to learn, and a disciplinary offense at IDC Herzliya. The lecturer will instruct disrupting parties to leave the classroom immediately. A second offence will automatically be brought before the IDC Disciplinary Board, with significant academic consequences.

Confirmation: Dean of the School of Psychology.

Last Update: October 2011

Grading Scale: The academic grading system used in all modules in the international psychology courses is grades 0-100.

Passing grade is 60.

Module evaluation: By the end of the semester, students will evaluate the module and provide feedback on the quality of teaching. Evaluation forms will be given to students sometime during the last three weeks of the semester. The forms will be distributed and collected by representatives of the IDC, and the data will be compiled and provided to the lecturer, the dean of the School of Psychology and the Provost.

Plagiarism: Plagiarism occurs when students take phrases or passages from books, articles, or the internet, and use them in their own papers without proper documentation (i.e. stating the reference) as their own. In practice this means that you must be sure to place all direct quotations within quotation marks and you must always indicate where the quotation or ideas come from: e.g.(Bloggs 2001, p.34).

Plagiarism can also occur when students turn in passages that are nearly equivalent to what someone else has written, with only a few words changed here or there. You can also plagiarize if you turn in something that is “thought for thought” the same as someone else.

Any act of Plagiarism in essays will be brought before the disciplinary committee.