DEREE COLLEGE SYLLABUS FOR:

PS 2047 ANALYSIS OF BEHAVIORAL DATA - LEVEL 4 **3/3/4**
(Revised Spring 2015)

UK credits: -20

PREREQUISITES:

CATALOG DESCRIPTION: A comprehensive coverage of fundamental aspects in probability and statistics. Analysis of behavioral data with graphs, descriptive and inferential statistics. Interpretation of research findings from graphs, parametric and non-parametric tests. The use of SPSS statistical software constitutes an integral part of teaching and learning. Laboratory sessions complement the lectures.

RATIONALE: This course provides students with the basic knowledge of statistics and their application to research in the field of social sciences. Students will gain an understanding of the underlying conceptual processes and assumptions of different statistical procedures, use this knowledge appropriately to choose statistical tests and gain familiarity performing these procedures with SPSS statistical software. This background knowledge is essential in allowing students to critically evaluate empirical findings in research papers and to make informed decisions in the selection of statistical tests conducting their own research in advanced modules of psychology. It is appropriate for students who have completed one 1000-level course from the psychology or sociology programme.

LEARNING OUTCOMES: As a result of taking this course, the student should be able to:

1. Apply and interpret descriptive statistics commonly used in psychological research
2. Develop an understanding of the logic of hypothesis testing and its role in the research process.
3. Develop and apply computer skills to perform analyses with SPSS software.
4. Acquire knowledge on fundamental statistical concepts and tools useful for applications in psychological research.
5. Comprehend, synthesize and interpret output from statistical analyses, as well as write reports of the results of the statistical analyses giving summaries and conclusions.
6. Develop critical and analytical thinking skills appreciating the strengths and limitations of statistics in scientific/empirical research.

METHOD OF TEACHING AND LEARNING: In congruence with teaching and learning strategy of the college, the following tools are used:

- The course is delivered through lectures and practical workshops where SPSS will be a teaching aid as well as a medium for solving problems.
- Lab component, an integral part of the course, is designed to give students hands-on experience with statistical package and data analysis (SPSS and Excel). Lab assignments will be given each period to be completed during the lab session. This will allow students to assimilate and consolidate material covered in lectures.
- Office hours
- Use of Blackboard site

ASSESSMENT:

Weekly Lab Assignments – **Formative**	0%	Analyzing sets of data and interpreting findings
In-class midterm examination (1 hour) - **Summative**	40%	Problems (25 multiple choices) Short answer questions (Choice: 2 out of 4)
Final examination (2 hours, comprehensive) – **Summative**	60%	Problems (50 multiple choices) Short answer questions (Choice: 4 out of 6)

The formative lab assignments aim to prepare students for the final examination.
The midterm examination tests Learning Outcomes 1, 2, and 4.
The final examination tests Learning Outcomes 1, 2, 3, 4, 5 and 6 (main emphasis is given on learning outcomes 3, 5 and 6).

READING LIST:

1. Required Material

Howitt, D., & Cramer, D. (2011). *Introduction to SPSS in psychology* (5th ed). Essex, UK: Pearson Education Limited.

2. Further Reading: Readings to supplement the basic material covered in the textbook.

Field A. (2013). *Discovering statistics with SPSS.* (4th Ed.). London: Sage Publications.

Leech, N. L., Barrett, K. C. & Morgan, G. A. (2008). SPSS for intermediate statistics (3rd ed). New York, USA: Taylor & Francis Group.

Crawley, M. J. (2005). *Statistics: an introduction using R*. West Sussex, UK: John Wiley & Sons Ltd.

Gravetter, F.J. & Wallnau, L.B. (2007). *Statistics for the Behavioral Sciences* (7th Edition). Belmont, CA: Wadsworth/Thompson Learning.

Hayes, N. (2000). *Doing Psychological Research – gathering and analysing data.* Philadelphia, USA: Open University Press.

Howitt, D. and Cramer, D. (2000). *First steps in research and statistics: a practical workbook for psychology students.* London, UK: Routledge.

Loftus, G. R. (1978). On interpretation of interactions. *Memory & Cognition*, 6, 312-319.

Rosnow, R.L., & Rosenthal, R. (1989). Definition and interpretation of interaction effects. *Psychological Bulletin, 105,* 143-146.

Cohen, J. (1992). Quantitative methods in psychology: a power primer. *Psychological Bulletin, 112,* 155-159.

Cohen, J. (1994). The Earth is round (p<.05). *American Psychologist, 49*, 997-1003.

Bakeman & McArthur (1996). Picturing repeated measures. *Behavior Research Methods & Instrumentation, 28(4),* 584-589.

Killeen, P. R. (2005). An alternative to null-hypothesis significance tests. *Psychological Science, 16*, 345-353.

Crawford, J. R., Garthwaite, P. H., & Gray, C. D. (2003). Wanted: Fully operational definitions of dissociations in single-case studies. *Cortex, 39,* 357–370.

Crawford, J. R., & Howell, D. C. (1998). Comparing an individual's test score against norms derived from small samples. *The Clinical Neuropsychologist, 12,* 482–486.

RECOMMENDED MATERIAL:

The Psychologist
British Journal of Psychology
American Psychologist
Psychological Science
Psychological Bulletin

WWW.RESOURCES:

American Psychological Association
www.apa.org
British Psychological Society
www.bps.org.uk
Wadsworth Higher Education Learning

www.wadsworth.com
APA style resources available from
http://www.psychwww.com/resource/apacrib.htm
http://www.wooster.edu/psychology/apa---crib.html
http://owl.english.purdue.edu/workshops/hypertext/apa/index.html

INDICATIVE CONTENT: 1. Introduction to Statistics and its Terminology
1.1. t

2. Frequency Distributions and Graphical Representations

3. Population and Sample Descriptive Measures

4. Inferential statistics

5. Null and alternative hypotheses

6. Tests of Hypothesis for relationships

7. Tests of Hypothesis for mean differences
7.1 Non-parametric
7.2 Parametric

8. Analysis of Variance: One-way Classification

9. Analysis of Variance: Two-way Classification

10. Analysis of Covariance and Multivariate analyses