Discipline **MCP5871**
Data Treatment in Scientific Study

Subject area: 5131

Created: 03/07/2014

Active since: 03/07/2014

Number of credits: 2

Hours:

Theoretical (per week)	Practical (per week)	Self-study (per week)	Duration	Total
5	20	5	1 week	30 hours

Faculty Member Responsible:

Antonio Augusto Barbosa Lopes

Objectives:

To present and discuss alternatives for the organization of research data in suitable tables and their graphical representation. To provide conditions for easy transit of information between the database, the output of the statistical programs and the final tables for presentation and publication of the results. To present general notions of how the data contained in tables and graphs are treated from the point of view of quantification. How the research data should be arranged and treated for frequent medical and biological objectives (particularly in Cardiology and related laboratory activities) such as the characterization of causal relationships, risks, treatment effects and prognosis.

Background:

In postgraduate students' day-to-day practices, it is observed constant difficulty in the organization and treatment of the data obtained in research. Proper use of tables and graphs and appropriate data management shorten the way to achieve objectives, and avoid the loss of important observations and conclusions.

Content:

1) Construction of databases information traffic between Microsoft Excel and SPSS programs. 2) Data processing using the SPSS program for the descriptive analysis and the construction of tables and graphs. 3) Construction of tables and graphs for the analysis and interpretation of categorical and numerical variables. 4) Analyzes involving proportions, for diagnostic purposes (cutoff values, sensitivity, specificity, positive and negative predictive value and accuracy of a test) or therapeutic (risk, relative risk, relative risk reduction, odds and reason ("Odds ratio" and "hazard ratio")). 5) Processing of numeric data. Measures of central tendency, precision and dispersion. Confidence intervals for measures and differences between measures. 6) Tables and graphs appropriate to the study of effects, influences, causal relations and interferences. 7) Outcomes, risk factors and prognosis. 8) Notions of multivariate modeling for analysis of complex tables.

Assessment Method:

The performance of the students will be assessed on the basis of practical exam: Organization and analysis of data.

Observation:

Number of students: Minimum = 03 (three) Maximum = 15 (fifteen) IMPORTANT: Students must have the SPSS software module (version 17 or later) installed in their personal notebook. USP students are advised to check the possibility of accessing SPSS (also MINITAB software) via VPN.

Bibliography:

Age Smilde, Rasmos Bro, Pave Geladi. Multi-way analysis with applications in the chemical sciences. 2005. Chinchester:John Wiley and Sons. 381p.
Alan Agrest. An introduction to categorical data analysis. Second edition. 2007. New Jersey:John Wiley and Sons. 372p.
Alvaro José de Almeida Calegare. Introdução ao delineamento de experimentos. 2ª edição. 2009. São Paulo:Editora Edgard Blücher Ltda.
Bill Shipley. Cause and correlation in biology. A user's guide to path analysis, structural equations and causal inference. 2000. Cambridge:Cambridge University Press. 317p.
Daniel Zelterman. Model for discrete data – revised version. 2006. New York:Oxford University Press Inc., 285p.
Fletcher RH, Fletcher SW, Wagner EH. Epidemiologia clínica: elementos essenciais. 3a edição. Trad. Bruce B. Duncan, Maria Inês Schmidt. 3ª reimpressão 2003. 281p.
Field A. Descobrindo a estatística usando o SPSS. 2ª edição. 2009. São Paulo:Penso Editora. 688p.
Gerry P. Quinn, Michael J. Keough. Experimental design and data analysis for biologists. 2033. Cambridge: Cambridge University press. 537p.

Idiomas ministrados:

Português