UAB

Universitat Autònoma de Barcelona

2018/2019

Analysis Models in Clinical and Health Psychology Research

Code: 43881
ECTS Credits: 6

Degree	Type	Year	Semester
4316222 Research in Clinical Psychology and Health	OT	0	2

Contact

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Teachers

M. Dolors Riba Lloret

Use of languages

Principal working language: spanish (spa)

Prerequisites

Knowledge of Module 1, especially those related to research methodology and research designs, for their direct link with statistical modeling, and those related to descriptive and bivariate analysis.

Objectives and Contextualisation

Provide the necessary skills (theoretical and instrumental) so that the student is able to:

- Carry out data analysis of a research using linear or logistic regression models, both in order to predict the response and to study the influence of an exposure on the response.

- Incorporate the phenomena of interaction and confusion into the statistical modeling process.

- Perform the diagnosis of the conditions of application of linear and logistic regression models.

- Distinguish a moderator variable from a mediator variable, and propose together with the estimation of models of structural equations for the analysis of mediation models.

- Interpret the results of the regression models and SEM, being able to select those most suitable to be included in the research report.

Skills

- Analyze critically the most current theories, models and methods of psychological research in the field of clinical and health psychology.
- Analyze data and interpret results on research in clinical and health psychology.
- Apply the outstanding ethical principles and act accordingly to the deontological code for the profession in the scientific research practic.
- Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
- Continue the learning process, to a large extent autonomously.

- Discuss the results the results on clinical and health psychology research, and contrast them with existing scientific literature and draw conclusions and practical applications.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Use scientific terminology to argue the results of research in the context of scientific production, to understand and interact effectively with other professionals.

Learning outcomes

1. Apply the outstanding ethical principles and act accordingly to the deontological code for the profession in the scientific research practic.
2. Choose the most appropriate statistical model according to the research question, the data collection design and the measurement scale for the variables involved.
3. Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
4. Continue the learning process, to a large extent autonomously.
5. Draw practical conclusions from the results and evaluate their implications.
6. Evaluate the adjustment indices obtained using the computer after carrying out a statistical or psychometric analysis to test the adequacy of the chosen model.
7. Interpret and discuss the results of the research in applied psychology focusing on the design, method and analyses carried out.
8. Interpret the statistical results and the effects of the magnitude of an effect taking into consideration the sample size and statistical potential.
9. Know the main techniques of single-stage sampling, know how to decide the most appropriate to the objectives of a research in a specific field, and know how to calculate the sample size needed to acquire a certain statistical power.
10. Recognize research designs that involve a data analysis using structural equation models for the analysis of mediator variables between exposure and response.
11. Recognize research designs that involve a data analysis with multivariate quantitative methods.
12. Select all the results produced by the computer after carrying out a statistical analysis, and the appropriate indices that should appear in a publication.
13. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
14. To estimate the multivariate statistical models that the module contemplates using computer programs of statistical analysis.
15. Understand the general limitations of models of statistical analysis explained in the module: relevant research methods and types of analyzable response variables.
16. Understand the limitations of theoretical conclusions which may be derived from the numerical results obtained using the statistical analysis models explained in the module.
17. Use scientific terminology to argue the results of research in the context of scientific production, to understand and interact effectively with other professionals.

Content

Unit 1

- Linear regression: predictive models and to evaluate effects.

- Statistical modeling in the presence of interaction and confusion.

- Diagnosis of the linear regression model.

Unit 2

- Logistic regression: predictive models and to evaluate effects.

- Logistic regression and diagnostic tests.

- Diagnosis of the logistic regression model.

Unit 3

- Moderation vs mediation.

- Structural equation models for the analysis of mediating variables.

Methodology

Directed:

- Master class. Using a material published by the teachers, explanation is made based on examples and matrices of real research data in psychology. Each master class ends with a space dedicated to the debate with students, who are expected to provide feedback on the understanding, usefulness and applicability of the presented concepts.

- Practical sessions with Stata. The results presented in the master class are replicated using Stata. New exercises with a similar structure are also added.

Supervised:

- Collective tutorials on TFM. We reserve 4 face-to-face hours to discuss collectively doubts about the TFM that each student has to make, in terms of design, instruments and mainly data analysis.

Autonomous:

- As part of the assessment each student will make a report that responds to questions of investigation about a problem published in an indexed journal

- Personal study.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Master class	18	0.72	1, 16, 15, 9, 2, 14, 5, 8, 7, 13, 3, 4, 10, 11, 12, 17, 6
Practical sessions with Stata	19.5	0.78	1, 16, 15, 9, 2, 14, 5, 8, 7, 13, 3, 4, 10, 11, 12, 17, 6
Type: Supervised			
Collective tutorials about TFM	5.5	0.22	16, 15, 5, 7, 13, 3, 11, 12, 17
Type: Autonomous			
Elaboration of reports	16	0.64	1, 16, 15, 9, 2, 14, 5, 8, 7, 13, 3, 4, 10, 11, 12, 17, 6
Personal work	85	3.4	1, 16, 15, 9, 2, 14, 5, 8, 7, 13, 3, 4, 10, 11, 12, 17, 6

Evaluation

The continuous evaluation process will integrate 4 evaluative elements:

Evidence 1 (40%): Computer examination on linear regression models.
Evidence 2 (30%): Computer examination of logistic regression models.

Evidence 3 (20%): Public presentation of the analysis and conclusions of a mediation problem published in the scientific literature. It will be done in groups of 2 students.
Evidence 4 (10%): Attendance and active participation in class.

The final qualification of the continuous evaluation will be obtained as the weighted average of the 4 evaluation evidences. The module will be passed with qualifications equal to or greater than 5 points (on a scale of 0 to 10 points). The students who have obtained a final qualification between 3.5 and 5 points and who have made evidence of evaluation with a minimum weight of 2/3 of the total, will be able to take the re-evaluation test, which will allow them to re-evaluate evidence 1 and / or 2 that have not succesfully passed. The maximum score that can be obtained on each reevaluated evidence will be 6 points.

A student who has presented evidence that exceeds 40% of the total may not be qualified as "Not Evaluable" or "Not Submitted".

The document with the evaluation guidelines of the Faculty can be found at
http://www.uab.cat/doc/DOC_avaluaciotitulacions1819

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Attendance-Participacion in class	10	0	0	1, 16, 15, 9, 2, 14, 5, 8, 7, 13, 3, 4, 10, 11, 12, 17, 6
Linear regressyon exam	40	2	0.08	1, 16, 15, 9, 2, 14, 5, 8, 7, 13, 3, 4, 10, 11, 12, 17, 6
Logistic regression exam	30	2	0.08	1, 16, 9, 2, 14, 5, 8, 7, 3, 4, 11, 12, 17
Presentation of a published mediation problem	20	2	0.08	1, 16, 3, 10, 12, 17, 6

Bibliography

Kleinbaum, D.G., Kupper, L.L., Nizam, A., Muller, K., Rosenberg, E.S. (2012). Applied Regression Analysis and other Multivariable Methods. (5ª ed.). Boston (MA): Cengage Learning, Inc

Kleinbaum, D.G., Klein, M. (2012). Logistic regression. A Self-learning text. 3rd ed. New York: Springer-Verlag

Ato, M. y Vallejo, G. (2011). Los efectos de terceras variables en la investigación psicológica. Anales de Psicología, 27, 550-561.

Shmueli, G. (2010). To Explain or to Predict?. Statistical Science, 25, 289-310.