

**NOVA Information Management School**

**NOVA IMS**

<b>Course</b>	Data Analysis
<b>Coordinator</b>	Jorge Mendes
<b>ECTS</b>	6
<b>Objectives:</b>	<p>This course covers techniques of multivariate statistical analysis. Students should be able, given a set of data and a particular purpose, choose the appropriate methodology and have critical capacity regarding the results obtained.</p> <p>They should also have knowledge of the advantages, limitations and conditions of applicability of various data analysis methodologies presented by discipline.</p>
<b>Attending requirements:</b>	Statistics and linear algebra (recommended)
<b>Curricular Unit Contents:</b>	<ol style="list-style-type: none"> <li>1. Introduction to Multivariate Statistics Data Analysis</li> <li>2. Fundamentals on data manipulation – introducing R software</li> <li>3. Graphical representation of multivariate data</li> <li>4. Multivariate normal distribution</li> <li>5. Principal components analysis</li> <li>6. (Exploratory) Factor Analysis</li> <li>7. Cluster analysis</li> <li>8. Discriminant analysis</li> <li>9. Multidimensional scaling</li> <li>10. Repeated measures analysis</li> </ol>
<b>Teaching method:</b>	The course is based on theoretical and practical classes. The classes are aimed at solving problems and exercises.
<b>Grading method:</b>	<ul style="list-style-type: none"> <li>• 1st Round: 3 Tests (70%) + 3 Homework assignments (30%)</li> <li>• 2nd Round: Final exam (70%) + 3 Homework assignments (30%)</li> </ul> <p>Remarks:</p> <ol style="list-style-type: none"> <li>1. A single minimum grade of 7.5 points and an average of 9.5 of the two tests are required; otherwise you are only qualified fo second round</li> </ol>

	<p>assessment.</p> <p>2. A minimum grade of 9.5 points is required in final exam at 2nd round; otherwise you do not get approved.</p>
<p><b>Bibliography:</b></p>	<ul style="list-style-type: none"> <li>• Everitt, B. and Hothorn, T. (2011). An Introduction to Applied Multivariate Analysis with R, Springer</li> <li>• Johnson, R.A and Winchern (2007), D. W., Applied Multivariate Statistical Analysis, 6th edition, Pearson Prentice Hall</li> <li>• Sharma, S. (1996), Applied Multivariate Techniques, Wiley</li> <li>• Reis, E. (1997), Estatística Multivariada Aplicada, Edições Sílabo</li> <li>• Timm, N. H., (2002) Applied Multivariate Analysis, Springer</li> </ul>