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| <b>COURSE: Statistics for social sciences II: multivariate techniques</b>         |                                   |                |
| <b>DEGREE: International Studies (IS) / IS and Law / IS and Political Science</b> | <b>YEAR: 2 (3 for IS and Law)</b> | <b>TERM: 1</b> |

| WEEKLY PLANNING |         |  |                    |          |   |                                |             |  |
|-----------------|---------|--|--------------------|----------|---|--------------------------------|-------------|--|
| I               | SESSION | DESCRIPTION  | GROUPS<br>(mark X) |          | Special room<br>for session<br>(computer<br>classroom,<br>audio-visual<br>classroom...) | WEEKLY PROGRAMMING FOR STUDENT |             |  |
|                 |         |  | LECTURES           | SEMINARS |   | DESCRIPTION                    | CLASS HOURS | HOMEWORK<br>HOURS<br>(Max. 7h<br>week) |
| 1               | 1       | Topic 1.1. Linear regression. Introduction; simple and multiple regression; motivation; graphical data analysis; model formulation; dummy variables; parameter interpretation; examples; applications. | X                  |          |   | Study of Topic 1.1             | 1,5         | 6                                      |
| 1               | 2       | Practical class.   |                    | X        |   | Exercises for Topic 1.1        | 1,5         |  |
| 2               | 3       | Topic 1.2. Fitting the model to the data; the least squares criterion; using the fitted model.   | X                  |          |   | Study of Topic 1.2             | 1,5         | 6                                      |
| 2               | 4       | Practical class.   |                    | X        |   | Exercises for Topic 1.2        | 1,5         |  |
| 3               | 5       | Topic 1.3. Model assumptions; inference on model parameters I: confidence intervals; inference on the response.  | X                  |          |   | Study of Topic 1.3             | 1,5         | 6                                      |

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| 3  | 6  | Practical class.   |   | x |                    | Exercises for Topic 1.3 | 1,5 |   |
| 4  | 7  | Topic 1.4. Inference on model parameters II: hypothesis testing; statistical significance of estimated parameters.                                 | x |   |                    | Study of Topic 1.4      | 1,5 | 6 |
| 4  | 8  | Practical class.   |   | x |                    | Exercises for Topic 1.4 | 1,5 |   |
| 5  | 9  | Topic 1.5. Assessing model fit; ANOVA.   | x |   |                    | Study of Topic 1.5      | 1,5 | 6 |
| 5  | 10 | Practical class.   |   | x |                    | Exercises for Topic 1.5 | 1,5 |   |
| 6  | 11 | Topic 1.6. Selection of predictor variables; multicollinearity; model diagnostics; model validation.   | x |   |                    | Study of Topic 1.6      | 1,5 | 6 |
| 6  | 12 | Practical class.   |   | x | computer classroom | Computer lab            | 1,5 |   |
| 7  | 13 | Topic 2.1. Binomial logistic regression. Motivation; model assumptions and formulation; parameter interpretation; examples; applications.          | x |   |                    | Study of Topic 2.1      | 1,5 | 6 |
| 7  | 14 | Practical class.   |   | x |                    | <b>1st midterm exam</b> | 1,5 |   |
| 8  | 15 | Topic 2.2. Fitting the model to the data; using the fitted model; inference on model parameters; statistical significance of estimated parameters. | x |   |                    | Study of Topic 2.2      | 1,5 | 6 |
| 8  | 16 | Practical class.   |   | x |                    | Exercises for Topic 2.2 | 1,5 |   |
| 9  | 17 | Topic 2.3. Assessing model fit; selection of predictor variables; multicollinearity.   | x |   |                    | Study of Topic 2.3      | 1,5 | 6 |
| 9  | 18 | Practical class.   |   | x |                    | Exercises for Topic 2.3 | 1,5 |   |
| 10 | 19 | Topic 3.1. Principal component analysis. Motivation; formulation; variance explained; examples; applications.                                      | x |   |                    | Study of Topic 3.1      | 1,5 | 6 |
| 10 | 20 | Practical class.   |   | x |                    | Exercises for Topic 3.1 | 1,5 |   |
| 11 | 21 | Topic 3.2. Deciding the number of components to keep; component scores; interpretation of components; graphical representations.                   | x |   |                    | Study of Topic 3.2      | 1,5 | 6 |
| 11 | 22 | Practical class.   |   | x |                    | Exercises for Topic 3.2 | 1,5 |   |
| 12 | 23 | Topic 4.1. Cluster analysis. Motivation; examples;   | x |   |                    | Study of Topic 4.1      |     | 6 |

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|   |    | applications; agglomerative hierarchical methods.                       |   |   |                    |                         |            |           |
| 12  | 24 | Practical class.  |   | x | computer classroom | Computer lab            | 1,5        |           |
| 13  | 25 | Topic 4.2. Graphical representations; dendrograms; similarity measures. | x |   |                    | Study of Topic 4.2      | 1,5        | 6         |
| 13  | 26 | Practical class.  |   | x |                    | <b>2nd midterm exam</b> |            |           |
| 14  | 27 | Topic 4.3. Fit; interpretation of clusters; more application examples.  | x |   |                    | Study of Topic 4.3      | 1,5        | 6         |
| 14  | 28 | Practical class.  |   | x |                    | Exercises for Topic 4.3 | 1,5        |           |
| <b>Subtotal 1</b>   |    |   |   |   |                    |                         | <b>42</b>  | <b>84</b> |
| <b>Total 1</b> ( <i>Hours of class plus student homework hours between weeks 1-14</i> ) |    |   |   |   |                    |                         | <b>126</b> |           |

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| 15   |  | Tutorials, handing in, etc |  |  |  | Tutorials | 6         |           |
| 16   |  | Assessment                 |  |  |  |           |           |           |
| 17   |  |                            |  |  |  |           | 3         | 15        |
| 18   |  |                            |  |  |  |           |           |           |
| <b>Subtotal 2</b>  |  |                            |  |  |  |           | <b>3</b>  | <b>21</b> |
| <b>Total 2</b> ( <i>Hours of class plus student homework hours between weeks 15-18</i> ) |  |                            |  |  |  |           | <b>24</b> |           |

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| <b>TOTAL</b> ( <i>Total 1 + Total 2</i> ) |  |  |  |  |  |  | <b>150</b> |  |
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