Universidad Carlos III de Madrid
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| COURSE: ADVANCED STATISTICAL METHODS | | |
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| **DEGREE: BACHELOR IN INTERNACIONAL STUDIES** | **YEAR: 3** | **TERM: 2** |

## WEEKLY PLANNING

| WEEK | SESSION | DESCRIPTION | GROUPS (mark X) | | Special room for session (computer classroom, audio-visual classroom…) | WEEKLY PROGRAMMING FOR STUDENT | | |
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| | | | LECTURES | SEMINARS | | DESCRIPTION | CLASS HOURS | HOMEWORK HOURS (Max. 7h week) |
| 1 | 1 | Lesson 1. Introduction | X | | | Search for examples of socio-economic statistics in the media | 1,5 | |
| 1 | 2 | Lesson 1. Introduction | | X | | Present examples found in class | 1,5 | 4 |
| 2 | 3 | Lesson 2.Survey sampling: survey techniques | X | | | Design a sample selection method for a specific survey | 1,5 | |
| 2 | 4 | Lesson 2.Survey sampling: survey techniques | | X | | Present the proposed selection methods in class | 1,5 | 4 |
| 3 | 5 | Lesson 2.Survey sampling: estimation of socio-economic indicators based on survey data | X | | | Search for important socio-economic indicators of a country | 1,5 | |
| 3 | 6 | Laboratory 1: Introduction to software | | X | Computer room | Obtain descriptive statistics and construct plots based on a data set | 1,5 | 6 |
| 4 | 7 | Lesson 2.Survey sampling: estimation of socio-economic indicators based on survey data | X | | | Study the estimation methods for survey data | 1,5 | 6 |

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| 4 | 8 | Laboratory 2: Estimation of socio-economic indicators based on real data | | X | Computer room | Estimate specific socio-economic indicators using data from a given survey | 1,5 | |
| 5 | 9 | Lesson 3. Panel data analysis: models with fixed effects | x | | | Find a model for a specific panel data set | 1,5 | |
| 5 | 10 | Lesson 2.Survey sampling: Estimation of socio-economic indicators based on survey data | | x | | Present obtained estimates of selected socio-economic indicators in class | 1,5 | 6 |
| 6 | 11 | Review | x | | | Review all the previous material | 1,5 | |
| 6 | 12 | **First partial exam (assessed)** | | x | | | 1,5 | 6 |
| 7 | 13 | Lesson 3. Panel data analysis: models with fixed effects | x | | | Study the different types of models and the interpretation of model parameters | 1,5 | |
| 7 | 14 | **Partial presentation of project** | | x | | Present the first part of the Project in class | 1,5 | 6 |
| 8 | 15 | Lesson 3. Panel data analysis: models with fixed effects | X | | | Study methods of analysis of indicators based on models with fixed effects | 1,5 | |
| 8 | 16 | Laboratory 3: Fitting fixed effects models for panel data. | | X | Computer room | Fit a model with fixed effects to actual data and analyze specific socio-economic indicators based on the fitted models | 1,5 | 6 |
| 9 | 17 | Lesson 3. Panel data analysis: models with fixed effects | X | | | Study estimation methods for indicators based on models with fixed effects | 1,5 | |
| 9 | 18 | Lesson 3. Panel data analysis: models with fixed effects | | X | | Present the results of model fitting to actual data and analysis of socio-economic indicators based on the fitted models | 1,5 | 6 |
| 10 | 19 | Lesson 4. Panel data analysis: models with random effects | X | | | Study the different types of models and the interpretation of model parameters | 1,5 | |
| 10 | 20 | Laboratory 4: Fitting random effects models for panel data | | X | Computer room | Fit a model with random effects to actual data and analyze specific socio-economic indicators based on the fitted models | 1,5 | 6 |
| 11 | 21 | Lesson 4. Panel data analysis: models with random effects | X | | | Study estimation methods for indicators based on models with random effects | 1,5 | |
| 11 | 22 | Lesson 4. Panel data analysis: models with random effects | | X | | Present the results of model fitting to actual data and analysis of socio-economic indicators based on the fitted models | 1,5 | 6 |
| 12 | 23 | Lesson 5. Heterocedasticity and serial correlation in panel data | X | | | Study the different types of models and the interpretation of model parameters | 1,5 | |
| 12 | 24 | Lesson 5. Heterocedasticity and serial correlation in panel data | | X | | Study methods of analysis of indicators based on models with heteroscedasticity or serial correlation | 1,5 | 6 |
| 13 | 25 | Lesson 6. Evaluation of the effects of public | X | | | Find a model for the effect of a specific | 1,5 | 6 |

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| | | interventions | | | | public intervention | | |
| 13 | 26 | Lesson 6. Evaluation of the effects of public interventions | | X | | Present the results of the modeling of a specific public intervention | 1,5 | |
| 14 | 27 | Review | X | | | Review all the previous material | 1,5 | |
| 14 | 28 | **Second partial exam (assessed)** | | X | | | 1,5 | 6 |
| | | | | | | **Subtotal 1** | **42** | **80** |
| | | | | | | **Total 1** *(Hours of class plus student homework hours between weeks 1-14)* | **42+80=122** | |

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| 15 | | **Final presentation of project (assessed)** | | | | Present the final project in class | 15 | |
| 16 | | **Assessment** | | | | | 3 | 10 |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| | | | | | | **Subtotal 2** | **3** | **10** |
| | | | | | | **Total 2** *(Hours of class plus student homework hours between weeks 15-18)* | **15+3+10=28** | |

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| **TOTAL** *(Total 1 + Total 2)* | **150** |