Course Unit Description

COURSE: COMPUTER SCIENCE
YEAR: 1º SEMESTER: 1º
DEGREE: BUSINESS ADMINISTRATION AND MANAGEMENT
MODALITY: IN-CLASS TEACHING
ACADEMIC YEAR: 2020/2021
SCHOOL OF BUSINESS AND ECONOMICS
1. COURSE IDENTIFICATION

1.- COURSE:

Name: Computer Science

Code: b104/ 13257

Year(s) course is taught: 1st

Semester(s) course is taught: 1st

Type: Compulsory

ECTS Credits: 6

ECTS Hours: 30

Language: English

Modality: In-class teaching

Degree(s) in which course is taught: Business administration and Management; Business Administration and Management and Marketing and Commercial Management; Law and Business Administration and Management.

School where course is taught: School of Economics and Business Administration and Law.

2.- ORGANIZATION OF THE COURSE:

Department: Applied Mathematics and Statistics

Area of knowledge: Statistics and Operational Research

2. TEACHING STAFF OF THE COURSE

1.- TEACHING STAFF:

Responsible of the course

CONTACT DETAILS

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Coordinator of the course

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Lecturer

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<thead>
<tr>
<th>Lecturer</th>
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<tbody>
<tr>
<td>Name: Díaz Palencia, José Luis</td>
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</tbody>
</table>
Lecturer CONTACT DETAILS

Name: Raboso Paniagua, Dulcinea

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Email: dulcinea.rabosopaniagua@ceu.es

Office: JRB 0.04

2. TUTORIAL ACTIVITY:

For any query regarding the course, students may contact instructors by e-mail, phone or visiting their office during the teacher’s tutorial timetable published on the student’s Virtual Campus.

3. COURSE OBJECTIVES

The course offers basic knowledge on descriptive statistics and computer technologies, with particular focus in worksheets and data base usage (such as INE, Eurostat, SABI, Compustat, Bloomberg, The Machine Learning Repository, Databank, etc.). These tools will be implemented to prepare descriptive reports where variables related to businesses and macroeconomic indicators are analysed in order to describe events of the real world.

4. STUDENT LEARNING SKILLS AND OUTCOMES

1. LEARNING SKILLS:

<table>
<thead>
<tr>
<th>Code</th>
<th>Basic and General Skills</th>
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<tbody>
<tr>
<td>BS2</td>
<td>Ability to apply the knowledge to their work in a professional way. Demonstrate it by means of personal creation, building and defending arguments, reasoning and solving problems.</td>
</tr>
<tr>
<td>BS3</td>
<td>Ability to gather and to interpret relevant data from the different content areas and to be able to express judgements that include a reflection on relevant topics related to ethical, scientific or social areas.</td>
</tr>
<tr>
<td>GS1</td>
<td>Analytical and critical thinking.</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Specific Skills</th>
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<tbody>
<tr>
<td>SS6</td>
<td>Ability to use Information Technologies applied to business and capacity to identify the sources of relevant economic information and its content.</td>
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2. LEARNING OUTCOMES:

By the end of this course, students will be able to:

- Know the possibilities offered by the most appropriate computer tools for the organization and management of the company today.
- Manipulate and process the relevant data for economic analysis and scientific calculation with the appropriate computer programs.
5. EDUCATIONAL ACTIVITIES

1.- DISTRIBUTION OF STUDENT’S ASSIGNMENTS:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA2</td>
<td>Seminar</td>
<td>30</td>
</tr>
<tr>
<td>EA4</td>
<td>In-Class Practical Lessons</td>
<td>30</td>
</tr>
<tr>
<td>TOTAL In-Class Hours</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>EA0</td>
<td>Expected own work by student</td>
<td>120</td>
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2.- EDUCATIONAL ACTIVITIES:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Definition</th>
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<tr>
<td>EA2 Seminar</td>
<td>Educational activity focused especially on the competence of the students to develop the learning skills enabling them to assimilate content acquired beforehand, while relating economic concepts and those of similar and/or auxiliary disciplines and different theoretical and methodological approaches. Students study each subject in depth to a large extent independently. This educational activity is also centred on encouraging students to acquire the skills necessary to communicate their conclusions – and the understanding and underlying reasons supporting them – to both the specialist and non-specialist public clearly and unequivocally. Priority is given to the participation of students and their sharing of the reasoned interpretation of knowledge and the sources of their fields of study, all of which is coordinated by the teacher.</td>
</tr>
<tr>
<td>EA4 Practical Lessons</td>
<td>Educational activity focused especially on the competence of the students to collect, manipulate and process relevant data and variables for economic, statistical, financial, accounting and tax analyses. Priority is placed on students undertaking activities that involve the application of theoretical and/or technical knowledge acquired, which may be done individually or in a group, depending on the subject and the skills to be acquired.</td>
</tr>
<tr>
<td>EA0 Student’s autonomous work</td>
<td>The student manages his/her own time to study the subject through the material of the course.</td>
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6. ASSESSMENT SYSTEMS AND CRITERIA

1.- CLASS ATTENDANCE:

To qualify for the continuous assessment, it is required to attend at least 75% of classes (attendance will be checked in class). Since students may miss 25% of the classes without affecting their attendance requirement, certificates for missed classes will not be accepted.
2.- ASSESSMENT SYSTEMS AND CRITERIA:

<table>
<thead>
<tr>
<th>ASSESSMENT SYSTEMS</th>
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<tr>
<td>Code</td>
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<tr>
<td>AS8</td>
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<tr>
<td>AS6</td>
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3.- ASSESSMENT SYSTEMS DESCRIPTION

ORDINARY EXAMINATION (Continuous Assessment)

Assessment of students will be based on:
- Final exam with computer about the course (50%) (minimum grade of 4 is required for being eligible for the continuous assessment).
- Partial test: theoretical-practical computer-aided about the topics covered so far (10%).
- In-class work: Weekly, exercises solved in class by students will be uploaded and graded (10%).
- Written tests: about each course unit, in class (20%).
- Report about a statistical data analysis (10%) (mandatory, needed to be graded above 5 to enjoy the continuous assessment, otherwise just the final exam will be accounted in the grading).

EXTRAORDINARY EXAMINATION

The student who did not pass the subject in the ordinary examination, will be evaluated in the extraordinary examination, consisting on two parts:
- Final exam with computer about the course (90%).
- Report about a statistical data analysis (10%) (mandatory, needed to be graded above 5 to enjoy the continuous assessment, otherwise just the final exam will be accounted in the grading).

* If the student passed the report in the ordinary examination, that grade is kept for the extraordinary examination.

7. COURSE SYLLABUS

1.- COURSE SYLLABUS:

Part 1: Descriptive statistics and applications in Excel

Topic 1: Descriptive statistics.
Population and Sample.
Types of variables.
Measures of position.
Measures of dispersion.
Skewness and Kurtosis.
Measures of inequality.

Topic 2: Introduction to data processing.
Databases: Filetypes, importing and exporting.
Databases: Pivot tables and charts.
Exercises in Excel.
Part 2: Bivariate distributions, linear regression and applications in Excel

Topic 3: Bivariate distributions.
Joint, marginal and conditional frequencies.
Frequency tables.
Graphical representations.
Independence of statistical variables.
Exercises in Excel.

Topic 4: Correlation and linear regression.
Correlation and regression: concept and types
The method of ordinary least squares
Linear correlation: coefficients of correlation and determination
Exercises in Excel.

8. BIBLIOGRAPHY

1.- BASIC BIBLIOGRAPHY:


2.- ADDITIONAL BIBLIOGRAPHY:


3.- WEB RESOURCES:

In English:

- Bloomberg: platform with financial information (real-time data, news or analytics).
- Compustat: Database with company data.
- Eurostat: http://epp.eurostat.ec.europa.eu
- Kaggle: https://www.kaggle.com/
- Quandl: https://www.quandl.com/
- The Data and Story Library: http://lib.stat.cmu.edu/DASL/
### In Spanish:

- Bank of Spain: [https://www.bde.es/bde/es/](https://www.bde.es/bde/es/)
- Community of Madrid: [http://www.madrid.org](http://www.madrid.org)
- Learn with Alf: [http://aprendeconalf.com](http://aprendeconalf.com)
- Madrid City Council: [datos.madrid.es/](datos.madrid.es/)
- SABI: Database with economic and financial information about Spanish and Portuguese companies.
- Spanish Government: [datos.gob.es](datos.gob.es)

### 9. CLASSROOM CODE OF CONDUCT

#### 1.- REGULATIONS:

Any irregular act of academic integrity (no reference to sources, plagiarism of work or inappropriate use of prohibited information during examinations) or signing the attendance sheet for fellow students not present in class will result in the student not being eligible for continuous assessment and possibly being penalized accordingly to the University regulations.

Students should observe the following norms while in class:

- Sit properly.
- Switch off mobiles during class, exams and other classroom activities.
- Maintain at all times a respectful attitude, both to the fellow students and to teachers and other staff of the University.
- Do not enter a classroom with food or drinks.
- Do not read or handle material other than those of the subject being taught.
- Show respect to the University and its facilities.

Any attempt to copy in an exam, in whatever form, is considered a very serious offence, contrary to the spirit of the University. As per the rules of behaviour for students (approved by the University Council on December 17th, 1997), any such attempt will result on the opening of a case to study the situation, and it could result on the temporary or permanent expulsion of the student from the University.

### 10. EXCEPTIONAL MEASURES

Should an exceptional situation occur which prevents continuing with face-to-face teaching under the conditions previously established to this end, the University will take appropriate decisions and adopt the necessary measures to guarantee the acquisition of skills and attainment of learning outcomes as established in this Course Unit Guide. This will be done in accordance with the teaching coordination mechanisms included in the Internal Quality Assurance System of each degree.