Statistics

Code: 103992
ECTS Credits: 6

Degree	Type	Year	Semester
2502501 Prevention and Integral Safety and Security	FB	1	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

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Use of Languages

Principal working language: spanish (spa)

Some groups entirely in English: No

Some groups entirely in Catalan: No

Some groups entirely in Spanish: No

Prerequisites

This subject does not have any specific requirements

Objectives and Contextualisation

Learn the basic statistical theoretical basis for the analysis and comprehension of information prepared by the competent bodies in the field of security and by statistical observatories.

Master the formulation necessary to prepare and adjust for themselves the statistical information to their own specific environments, both public or private activity, where they develop their function in the future.

Have the ability to infer and make forecasts and forecasts and know the relevant variables and their management in scenarios of risk, uncertainty and competition.

Use basic tools and computer programs, complementary to the content of the subject.

Competences

- Apply specific software tools to solve problems specific to security.
- Be able to communicate efficiently in English, both orally and in writing.
- Carry out scientific thinking and critical reasoning in matters of preventions and security.
- Contribute to decisions on investment in prevention and security.
- Know how to communicate and transmit ideas and result efficiently in a professional and non-expert environment, both orally and in writing.
- Plan and coordinate the resources of the three large subsystems that interact in questions of security: people, technology and infrastructures.
- Use the capacity for analysis and synthesis to solve problems.
- Work and learn autonomously.
- Work in institutional and interprofessional networks.

Learning Outcomes

1. Apply the basis of statistics. Economics and finance, in the applicable legal framework and the informatics necessary to undertake prevention and security.
2. Apply tools and develop specific software for solving the problems that are particular to security, the environment, quality and social corporate responsibility.
3. Be able to communicate efficiently in English, both orally and in writing.
4. Carry out scientific thinking and critical reasoning in matters of preventions and security.
5. Design a project applied to integral security and prevention in an organisation.
6. Know how to communicate and transmit ideas and result efficiently in a professional and non-expert environment, both orally and in writing.
7. Use the capacity for analysis and synthesis to solve problems.
8. Work and learn autonomously.
9. Work in institutional and interprofessional networks.

Content

1. Introduction

   1.1. Concept of Statistics

   1.2. Statistical sources

   1.3. Statistical data applied to risks' prevention

   1.4. Statistics in the decision making

2. Statistical observation

   2.1. Universe and sample

   2.2. Variables and attributes

   2.3. Data and its treatment

   2.4. Counting methods

   2.5. Frequency tables

3. Analysis of one variable

   3.1. Position measures

      3.1.1. Mode, median, quantiles and averages

   3.2. Dispersion measures

      3.2.1 Range, expected value, variance and standard deviation

   3.3. Distribution measures

      3.3.1. Skewness and kurtosis

      3.3.2. The histogram

   3.4. Grouping and distribution of frequencies

      3.4.1. Graphic analysis

4. Analysis of two variables

   4.2. Contingency tables

4.1. Correlation and linear regression

5. Time series. Introduction

5.1. Trend and variation types

5.2. Moving average

6. Combinatorics

6.1. Probability. Introduction

6.2.1. Classical or a priori, a posteriori, subjective, axiomatic and conditional

6.2. Basic theorems

6.3. Probability and risk

6.4. Density and frequency functions

6.5. Probability and forecasts

6.6. Probability adjusted to risk environments

Methodology

Students must study the teaching units provided, which are enough to progress in this subject. Recommended bibliography should be considered as a helping tool. There will be several virtual sessions that will allow the student to review the content that he/she has been individually working on.

They also must deliver the PECs previously arranged in the calendar.

For the completion of PEC 0 it is required to research and collect data from, among others, the recommended.

Tutorials with the teaching staff will be arranged by email, upon request.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Evaluation	4	0.16	2, 1, 3, 6, 4, 5, 9, 8, 7
Theoretical classes with ICT support to solve doubts	12	0.48	2, 1, 3, 6, 4, 5, 9, 8, 7
Type: Supervised			
Discussion forums, resolution of practical cases and tests. Tutorials and videoconference sessions	24	0.96	2, 1, 3, 6, 4, 5, 9, 8, 7
Type: Autonomous			

Resolution of practical cases. Realization of works. Personal study	110	4.4	2, 1, 3, 6, 4, 5, 9, 8, 7

Assessment

1-Individual theoretical-practical test

Final test to do individually, in any format: test, development or resolution of exercises. This test will be required to pass the subject and will be done at the scheduled date and time. Under the criteria of continuous assessment, this test will weight in the final grade, as established in the table, of 40%.

Not passing the subject, and according to the criteria of the continuous assessment, a re-take test is offered on the scheduled date and time. The test will gather the entire content of the program. In order to do this re-take, there must be evidence of evaluation during the course of at least 2/3 of the content used to assess the final grade. However, after the re-take, the final grade will be no more than 5-Pass.

If you need to change the date of any test, the petition must be submitted by filling out the document you will find in the moodle EPSI Tutorial space.

["If the student makes any irregularities that may lead to a significant variation in the qualification of an evaluation act, this evaluation act will be classified with a 0, regardless of the disciplinary process that can be instructed. produce different irregularities in the acts of evaluation of the same subject, the final grade of this subject will be 0 ".]

2 -Online individual theoretical and practical tests - periodic exercises

Individual resolution of tests, to be delivered periodically. The number of these tests will be determined at the beginning. Their evaluation will be based on:
- Timely delivery of the proposed PECs. It is required to deliver at least 2/3 of them. Those not delivered will be graded as 0 (zero)
- Quality of the exhibitions and answers
- Understanding and mastery of the subject
- Additional contribution that deepens the subject (penalizing plagiarism)
- Ability to express and summarize
- Do not copy literal texts of the teaching material provided

They can be done by sharing knowledge with other members of the subject but the delivery will be individual. The delivery will be virtual within the arranged deadlines. The average in the grades of these tests (0 to 10) will have a weight in the final grade of the subject of 30%.

3 - Long-term assignment

Long-term evaluation serves as a recopilatory work of the subject. Its topic and content will be specified at the beginning of the course. It will be evaluated based on:
- The quality of content and analysis, as well as the orderly and attractive presentation
- The use of the statistics studied in the course
- The variety and actuality of used sources
- The ability to analyze the information
- The ability to predict and extrapolate, given the analysis
- Analysis and conclusions of the work carried out

The presentation of the work is required to qualify the subject. Working on it is individual. You can not share your elaboration with other members of the course.

Important! The grading will be from 0 to 7, with a weigth in the final grade of the subject of 30%. Up to this point, with the 3 blocks explained, a maximum score of 9.1 may have been obtained. The rest of the grade is pending up to a maximum of 10 points for the block that is explained below.

4- Continuous evaluation - multiplier

Tracking will be evaluated throughout the course. It is intended to see the evolution during the course, as well as the domain at the end of it. For example, a forum of doubts supervised by the teacher of the course will be provided. The approach and resolution of doubts, sharing ideas or proposals to solve the PECs (without giving an explicit solution), etc.

In short, on the grade obtained in the previous sections, a multiplier will be applied between 1.00 and 1.10, at the discretion of the teacher (e.g., grade 9.1 * maximum multiplier 1,1 = 10, or grade 7, 2 * remarkable multiplier 1,07 = 7.7). The non-delivery of tasks or cases in which plagiarism is detected will involve a multiplier of less than 1.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Final project	30%	0	0	2, 1, 3, 6, 4, 5, 9, 8, 7
Understanding and correct use of concepts and formulas or applications in the realization and delivery of the works and exercises required on-line.	30%	0	0	2, 1, 3, 6, 4, 5, 9, 8, 7
Written or oral tests to assess the knowledge acquired by the student	40%	0	0	2, 1, 3, 6, 4, 5, 9, 8, 7

Bibliography

Paul g. Hoel. Introducción a la Estadística Matemática

Paul g. Hoel, Raymond J. Jessen.- Estadística Básica para Negocios y Economía

Angel Alcaide, Nelson Alvarez .- Econometría, Modelos Deterministas y Estocásticos.

Sánchez Fdez. J.- Introducción a la Estadística Empresarial

Jorge Galbiati. .- Estadistica Asistida por Ordenador

Vladimir Zaiats, M.Luz Calle i Rosa Presas.- Probabilitat i Estadisitica. Exercicis I

Alfonso Garcia Barbancho y Vicente Lozano .- Estadística Teórica

R.S & D.L. Rubinfeld .- Econometric Models and Economic Forecasts.

Software

Microsoft Excel