Statistical crime analysis

Academic Year: (2020 / 2021) **Review date: 30-06-2020**

Department assigned to the subject: Statistics Department

Coordinating teacher: WIPER , MICHAEL PETER

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

None

OBJECTIVES

This section presents the competences associated with the subject:
CB1: That the students have demonstrated to possess and to understand knowledge in an area of study that starts from the base of general secondary education, and is usually found at a level that, although it relies on advanced textbooks, also includes some aspects Which involve knowledge from the vanguard of their field of study.
CB2: That students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and problem solving within their area of study.
CB3: That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.
CB4: That the students can transmit information, ideas, problems and solutions to a specialized and non-specialized public.
CB5: That the students have developed those learning skills necessary to undertake later studies with a high degree of autonomy.

CG1: Write, represent and interpret technical documentation related to Security.
CG4: Maintain a critical attitude and constant updating regarding knowledge about global security.
CE3: To know the Spanish Public Security System and the organization, missions and functions, of the Units, of the Civil Guard.
CE13: Know the basic computer systems and know how to handle tools of document management, statistics, databases related to crimes, social phenomena and preparation of operations.
CE27: Apply and integrate the knowledge acquired during the Degree to prepare a report, resolving the hypotheses raised and arriving at conclusions based on documentary or statistical data and proposals.
CT4: Motivation and ability to dedicate themselves to autonomous lifelong learning, allowing them to adapt to new situations.
The learning outcomes are as follows:
RA1. The acquisition of basic normative, theoretical or conceptual knowledge that support and allow adequate orientation of the reflection and understanding of its activities with a scientific-technological base that allows to approach with rigor the situations related to its profession.
RA6. Provide the necessary bases for autonomous learning, or to study postgraduate studies that allow them to deepen and / or specialize in different fields of security.
Other Learning outcomes:
Know the basic rules of probability
Manage the most important probability distributions
Synthesize statistical information in tabular, numerical and graphical form
Obtain the distribution in the sampling of estimators in normal populations, raise hypothesis contrasts and construct the corresponding confidence intervals
To propose and validate the linear regression model as a model of relationship between variables
To practice in the computer the construction of models, contrasts and confidence intervals
Apply these procedures to the treatment of statistical problems in security management and criminology

DESCRIPTION OF CONTENTS: PROGRAMME

Content leading to the acquisition of knowledge in:
-Introduction to probability and statistics: concept of probability and basic rules, distributions, descriptive statistics for one and several variables

-Introduction to statistical inference: confidence intervals and hypothesis contrasts for mean and variance; Comparisons of means between two populations
-Relations between variables: introduction to linear models, estimation of model parameters and inference about these parameters
-Applications to security management and criminology

LEARNING ACTIVITIES AND METHODOLOGY

Lecture classes for the presentation of fundamental concepts,
Practical classes in computer labs,
Tutorials in groups and individual

ASSESSMENT SYSTEM

Exercises, intermediate tests, mini-project using statistical analysis of data, final exam

% end-of-term-examination:	40
% of continuous assessment (assigments, laboratory, practicals…):	60

BASIC BIBLIOGRAPHY

- J.M. Gau Statistics for Criminology and Criminal Justice, SAGE Publications, 2015
- R.D. Bachman & R. Paternoster Statistics for Criminology and Criminal Justice, SAGE Publications, 2016

BASIC ELECTRONIC RESOURCES

- M.P. Wiper . Teaching web page: http://halweb.uc3m.es/esp/Personal/personas/mwiper/eng/docencia.html