COURSE DATA

DATA SUBJECT

Code: 36532
Name: Risk Management in the Insurance Industry
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1332 - Degree in Business Intelligence and Analytics	Facultat d'Economia	4	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1332 - Degree in Business Intelligence and Analytics	Complementos de Finanzas	ELECTIVES

COORDINATION

FURIO ORTEGA MARIA DOLORES

SUMMARY

Risk Management in the Insurance Industry is an elective subject (6 ECTS credits) that is taught in the second semester of the fourth year of the Degree in Business Intelligence and Analytics.

The objective is to provide students with the theoretical framework to analyze the typology of risks in the insurance industry, so that they are able to apply different techniques for its global management, as an essential step prior to financial planning.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

COMPETENCES / LEARNING OUTCOMES

1332 - Degree in Business Intelligence and Analytics

Acquire basic training that can be used to learn new methods and technologies and to adapt to new situations in academic and professional areas.

Be able to analyse and search for information from diverse sources.

Be able to apply analytical and mathematical methods for the analysis of economic and business problems.

Be able to define, solve and present complex problems systemically.

Be able to learn autonomously.

Be able to plan, organise, monitor and evaluate the implementation of business strategies.

Be able to produce models, calculations and reports, and to plan tasks in the specific field of business intelligence and analytics.

Be able to solve problems and to communicate and spread knowledge, skills and abilities, taking account of the ethical, egalitarian and professional responsibility of the activity of business intelligence and analytics.

Be able to use ICT, both in academia and in professional practice.

Be able to work in a team demonstrating commitment to quality, ethics, equality and social responsibility.

Demonstrate skills for analysis and synthesis.

Know and know how to properly use the appropriate quantitative and qualitative methods to reason analytically, evaluate results and predict economic and financial magnitudes.

DESCRIPTION OF CONTENTS

1. Concept of Risk in the Insurance Sector. Principles and technical bases

1.1 Basic concepts
1.2 Determination of the insurance contract's price or premium. Technical Bases
1.3 Risk concept and typology of risks

2. Application of Data Science techniques to the insurance sector: design, pricing, marketing, fraud detection, digitalisation and customer relations

2.1 Introduction
2.2 Data used in the insurance sector
2.3 Big Data techniques used in the insurance sector

3. Integrated framework for global risk management: ERM

3.1 Introduction
3.2 The Solvency II Risk Management System
3.3 Internal Risk and Solvency Assessment
3.4 Technical Provisions
3.5 Solvency Capital Requirement
3.6 Minimum Capital Requirement
3.7 Investment Rules
3.8 Future prospects

4. The Integrated Risk Management Control Cycle as a Financial Planning instrument

4.1 Introduction
4.2 Principles of the ORSA process (Own Risk and Solvency Assessment)
4.3 Risk management under the ISO 31000 Standard

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Computer classroom practice	30,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	15,00
Independent study and work	45,00

Preparation of lessons	0,00
Preparation for assessment activities	30,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

In general, the theoretical classes will be taught through the master class methodology. The teacher will highlight the fundamental aspects of each topic and will guide the study through the proposed bibliography, which must be used inexcusably to complete and deepen in the matter.

The practical classes will consist of the resolution of exercises, study of proposed practical cases, presentations in class and/or discussions of readings. The necessary material for the development of the theoretical and practical classes will be available to the students in the Virtual Classroom (www.aulavirtual.uv.es).

Along with the above, group tasks may be carried out based on the discussion of texts previously delivered by the teacher, as well as the resolution of more complex exercises.

Students are expected to actively participate in classes.

EVALUATION

The course evaluation procedure will consist of:

1) Final written exam or synthesis test that will allow to obtain up to 60% of the final grade.

2) Continuous assessment based on the proposed training activities developed by the student (up to 40% of the final grade). It is expected that the student will participate and be actively involved in the teaching-learning process.

To pass the subject it will be necessary to obtain a minimum grade of 5 points out of 10, as a result of the sum of the grades obtained in the two previous sections.

Those students who do not pass the subject in the first call, will have the option of being evaluated in the second call by taking the written exam, maintaining the grade obtained during the quarter related to the continuous evaluation of previous section 1). The weights applicable to each of the sections will be identical to those of the first call.

Exams will be regulated by Article 13 on examination fraud of the ¿Reglament d¿avaluació i qualificació de la Universitat de València per a títols de grau i màster, ACGUV 108/2017¿.

Additionally, all the assessment tasks and homework will be subject to the regulation on plagiarism detailed in Article 15.2 of the same regulation.

Furthermore, students are reminded that the completion of assignments and assessment tests will also be subject to the new "Action protocol for fraudulent practices at the University of Valencia" (ACGUV 123/2020). In particular, according to this regulation:

1. Fraudulent practices are considered, among others: refusing to be identified or introducing unauthorized material during a test, as well as plagiarizing works (that is, copying, even partially, other people's works without citing their origin).

2. At the beginning of an exam, the teaching staff will inform about the material and objects that it is strictly forbidden to use. In any case, students are not allowed to have at their disposal, during an evaluation test, any electronic device unless expressly authorized by the teaching staff.

3. Students must follow the instructions given by the teaching staff and collaborate with them. In the event of any incident, the teaching staff is considered an authority and their testimony is a privileged means of proof.

REFERENCES

- Financial Data Analytics. Theory and Application. 2022. Springer. Editor: Sinem Derindere Köseo¿lu

- Directiva 2009/138/CE del Parlamento Europeo y del Consejo, de 25 de noviembre de 2009 , sobre el seguro de vida, el acceso a la actividad de seguro y de reaseguro y su ejercicio (Solvencia II) http://data.europa.eu/eli/dir/2009/138/oj

- European Insurance and Occupational Pensions Authorities (EIOPA). Guidelines on System of governance. EIOPA-BoS-14/253

- Ley 50/1980, de 8 de octubre, de Contrato de Seguro. https://www.boe.es/eli/es/l/1980/10/08/50/con

- Reglamento de Ejecución (UE) 2019/1902 de la Comisión, de 7 de noviembre de 2019, por el que se establece información técnica para el cálculo de las provisiones técnicas y los fondos propios básicos a efectos de la presentación de información con fecha de referencia comprendida entre el 30 de septiembre de 2019 y el 30 de diciembre de 2019 de conformidad con la Directiva 2009/138/CE del Parlamento Europeo y del Consejo, sobre el acceso a la actividad de seguro y de reasseguro y su ejercicio.

- Pitacco, E. ERM and QRM in Life Insurance. 2020. Springer

- European Insurance and Occupational Pensions Authorities, EIOPA (2019). Big Data Analytics in Motor and Health Insurance: A Thematic Review.

- Veiga Copo, A. (Director), Martínez Muñoz, M. (Coordinador), (2022). ¿Seguro de personas e intel·ligència artificial¿. Editorial Arazandi.

- Field, A. (2023). ¿Risk management and ISO 31000: A Pocket guide¿. Ely : IT Governance Ltd

- IWA 31:2020, Risk management ¿ Guidelines on using ISO 31000 in management systems, www.iso.org/standard/75812.html.