

**RISK ANALYSIS**

**Code 90083: Curricular Year 5<sup>th</sup> Semester 9<sup>th</sup> Optional Credits: 2.5 ECTS**  
**Lecturers: Virgílio Almeida (CPP and R), Telmo Nunes**

**1. Contact hours:**

**Lectures 8 h Practical 14 h Tutorials 6 h Total 28 h**

**2. Objectives:**

To provide tools for veterinarians working in animal health, veterinary public health or for the food industry to participate at risk assessment activities for specific problems – both qualitative and quantitative - and to actively discuss risk management and risk communication.

**3. Programme:**

**THEORETICAL**

Overview of the context and opportunities for risk analysis. Review and reinforcement of the terminology and concepts used in risk analysis: comparison of the systems used by the World Animal Health Organization and the *Codex Alimentarius*. Qualitative *versus* quantitative risk assessment. Data validation. Use/abuse of predictive microbiology. Dose response models assessment. Deterministic and stochastic models. Monte Carlo techniques. Uncertainty and variability. Risk management. Risk communication.

**PRACTICAL**

Case-studies: *Listeria monocytogenes* quantitative risk assessment in national cheeses; risk management during the Portuguese blue tongue epidemic; risk communication during the Portuguese BSE epidemic.

Students will use a friendly Excel add-in (@RISK) to make their quantitative risk assessments.

**4. Bibliography:**

Murray, N. et al, *Handbook on Import Risk Analysis for Animals and Animal Products*, Volume 1, Introduction and Qualitative Risk Analysis, World Animal Health Organization (OIE) 2004.

Murray, N. et al, *Handbook on Import Risk Analysis for Animals and Animal Products*, Volume 2, Quantitative Risk Assessment, World Animal Health Organization (OIE) 2004.

Vosse, D., *Risk analysis – a quantitative guide*, John Wiley & Sons, Ltd, 2008.

**5. Assessment:**

Student's assessment is continuous and it is done online through 3 mini-tests (account for 30% of the final mark, 10% each) concerning the topics presented and discussed during the theoretical and the practical courses, plus a risk analysis (accounts for 70% of the final mark) performed in group (5 students) presented and discussed on the last session.