

RISK ANALYSIS

Study Programme: MIMV **Curricular Year** 5th **Semester** 9th **Optional** **Credits:** 2.5 ECTS
Lecturers: Virgílio Almeida (CPP e R), Telmo Nunes

1. Contact hours:

Lectures 14 **Practical** 14 **Total** 28

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

Real life examples will illustrate the various methods of analysis introduced in this subject. 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, etc. Students will use a friendly Excel add-in (@RISK) to make their quantitative risk assessments.

4. Bibliography:

Murray, N., MacDiarmid, S., Wooldridge, M., Gummow, B., Morley, R.S., Weber, S.E., Giovannini, A. & Wilson, D. (2004). *Handbook on Import Risk Analysis for Animals and Animal Products*, Volume 1, *Introduction and Qualitative Risk Analysis*. World Animal Health Organization (OIE).
Murray, N., MacDiarmid, S., Wooldridge, M., Gummow, B., Morley, R.S., Weber, S.E., Giovannini, A. & Wilson, D. (2004). *Handbook on Import Risk Analysis for Animals and Animal Products*, Volume 2, *Quantitative Risk Assessment*. World Animal Health Organization (OIE).
Vosse, D. (2008). *Risk analysis – a quantitative guide*. John Wiley & Sons, Ltd.

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.