Course description

Course	Planning and Evaluation of Experiments
Department	Biomathematics and Informatics
Language	English
Nature	Mandatory
Year/semester	1st year, winter-term
Credits (ECTS)	4
Lectures (hour/semester)	12
Plenary lectures (hour/semester)	
Practicals (hour/semester)	12
Responsible teacher	Dr. Reiczigel Jenő
Teacher(s)	Dr. Reiczigel Jenő, Dr. Harnos Andrea
Prerequisites	

Learning outcome (include skills and competencies, if any)
Understanding the difference between systematic and random errors, and how to control the former by an appropriate experimental design. Ability to carry out the statistical analysis for various designs by linear or generalized linear models. Understanding the need of sample size calculation before an experiment, and being able to carry out this for some simple designs. Understanding specific principles of clinical trials.

Outcome assessment
Moodle test with essay, single- and multiple-choise questions

Weekly schedule of lectures and practicals

WEEK	**Lecture topics**

Week 1	Linear models (ANOVA, ANCOVA), Multiple comparisons, Generalized linear models, Fix and random factors
Week 2	Principles of experimental design, random and systematic errors, Random block design, latin square, greeco-latin square, Repeated measures
Week 3	Power and sample size calculation, Principles of clinical trials, randomisation, intention to treat, Noninferiority and equivalence trials

WEEK	Practical topics
Week 1	Practical computation using R
Week 2	
Week 3	

Recommended literature	
	Oehlert, Gary W. A first course in design and analysis of experiments, 2010 http://users.stat.umn.edu/~gary/book/fcdae.pdf (accessed 6 March 2020)
	Guideline on statistical principles for clinical trials for veterinary medicinal products (pharmaceuticals), European Medicines Agency, 2012 Further stuff (lecture slides, exercises, data etc) at biomat.univet.hu/mood

Note(s)