

## Statistics IV: Generalized Linear Models (PFS0174) Fall 2020

Week	Day	Date	Time	Room	Topic
46	Thursday	November 12	13:00 – 15:00	Zoom	<b>Lecture 1:</b> Introduction. GLM. Poisson regression I.
	Friday	November 13	10:00 – 12:00	Zoom	<b>Lecture 2:</b> Poisson regression II.
			13:00 – 15:00	Zoom	<b>Computer session 1:</b> Poisson regression.
47	Thursday	November 19	13:00 – 15:00	Zoom	<b>Lecture 3:</b> Logistic regression I.
	Friday	November 20	10:00 – 12:00	Zoom	<b>Lecture 4:</b> Logistic regression II.
			13:00 – 15:00	Zoom	<b>Computer session 2:</b> Logistic regression.
48	Thursday	November 26	13:00 – 15:00	Zoom	<b>Lecture 5:</b> Generalized linear models (GLM) and generalized linear mixed models (GLMM) I.
	Friday	November 27	10:00 – 12:00	Zoom	<b>Lecture 6:</b> Generalized linear models (GLM) and generalized linear mixed models (GLMM) II.
			13:00 – 15:00	Zoom	<b>Computer session 3:</b> GLM and GLMM I.
49	Thursday	December 3	13:00 – 15:00	Zoom	<b>Lecture 7:</b> Modelling positive continuous data (gamma distribution etc.).
	Friday	December 4	10:00 – 12:00	Zoom	<b>Lecture 8:</b> Buffer, extra.
			13:00 – 15:00	Zoom	<b>Computer session 4:</b> GLM and GLMM II. Buffer, extra.
50	Monday	December 7			Home Exam

All classes start with academic quarter, e.g. 13:15.

**Teachers:** Svetlana Saarela (svetlana.saarela@slu.se): lectures, computer sessions.  
Benoît Goze (benoit.goze.etu@univ-lille.fr): computer sessions.

**Home Exam:** A take-home exam will be provided on Monday, December 7<sup>th</sup>, on Canvas and by email. You will have one week, until Monday December 14<sup>th</sup>, to hand in results. This is to be solved individually. Further instructions will be given in the exam. After completed course, a course certificate will be issued for the student.

**Computer work:** The use of statistical software is an essential part of this course. In the computer rooms you can use your usual AD accounts or your student accounts. It is recommended, though, that you bring your own computer, with the necessary software installed. R is free-ware and can be downloaded from <https://cran.r-project.org/>. Make sure to do this before class starts. We promote R as programming languages since it is widely used and since the more complex models in this course can be run with this program. An advantage

is also that script-based programs can easily be saved with comments, which simplifies documentation of the analysis done.

**Course literature:**

Zuur, A.F., Ieno, E.N., Walker, N.J., Saveliev, A.A. and Smith, G.M. (2009). *Mixed Effects Models and Extensions in Ecology with R*. Springer-Verlag.

Available digitally from SLU library.

Mehtatalo, L. and Lappi, J. (2020). *Biometry for Forestry and Environmental Data: With Examples in R*. CRC Press.

Available digitally from SLU library.

McCulloch, C.E. (2003). *Generalized Linear Mixed Models. NSF-CBMS Regional Conference Series in Probability and Statistics*. Volume 7.

Available from Jstor.