



Fondazione
di Sardegna



Università degli Studi di
Cagliari

SEMINAR SERIES

Statistical Methods for Data Science

◆
Alan Agresti

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University of Florida · Gainesville, Florida, USA

I. 30 April 2026 — 11:00

◆ **Aula Girolamo Sotgiu (ex Aula Magna ex Spol)**

Via Sant'Ignazio da Laconi, 78 — Cagliari

Simple Ways to Interpret Effects in Modeling Binary and Ordinal Data

Probability-based effect measures for models for binary and ordinal response variables can be simpler to interpret than logistic (and probit) regression model parameters and their corresponding effect measures, such as odds ratios. For describing the effect of an explanatory variable while adjusting for others in modeling a binary response, it is sometimes possible to employ the identity and log link functions to generate simple effect measures. When such link functions are inappropriate, one can still construct analogous effect measures from a logistic regression model fit, based on average differences or ratios of the probability modeled or on average instantaneous rates of change for the probability. Simple measures are also proposed for interpreting effects in models for ordinal responses based on applying a link function to cumulative probabilities. The measures are also sometimes applicable with nonlinear predictors, such as in generalized additive models. The methods are illustrated with examples.

*Parts of this work were joint with Claudia Tarantola (University of Pavia) and Roberta Varriale (La Sapienza University, Rome), and appeared in the Springer book **Trends and Challenges in Categorical Data Analysis**, edited by Maria Kateri and Irini Moustaki.*

II. 5 May 2026 — 9:00

◆ **Aula Lai**

Via Nicolodi, 102 — Cagliari

An Introduction to Bayesian Statistics

This seminar provides an overview of the principles and methods of Bayesian statistics, with a focus on their application to real-world data problems. Starting from the building blocks of the Bayesian framework — prior distributions, likelihood functions, and posterior distributions — the seminar illustrates how Bayesian reasoning offers a natural and interpretable approach to statistical inference. Key topics include Bayesian modeling for proportions and means, an overview of Markov chain Monte Carlo (MCMC) methods for approximating posterior distributions, and Bayesian analogs of commonly used frequentist models. Throughout the seminar, examples will highlight the differences in interpretation between Bayesian and frequentist results. No previous knowledge of Bayesian inference is necessary, but some familiarity with the frequentist approach to statistical inference is assumed.

*Based on the book **Bayesian Statistics: A Primer for Data Scientists, with R and Python**, by A. Agresti, M. Kateri, R. Grove, and A. Mira.*

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