NTNU – Trondheim
Norwegian University of Science and Technology

Department of Mathematical Sciences

Examination paper for **TMA4315 Generalized Linear Models**

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Examination date: December 1st, 2015

Examination time (from–to): 09:00–13:00

Permitted examination support material: C. **NO** written or handwritten examination support materials are permitted. A simple calculator is permitted.

Other information:
You may answer this exam in **English**, **Norsk (begge/båe målføre)**, or a mix of these. All answers should be justified.

Language: English

Number of pages: 1

Number pages enclosed: 0

Checked by:

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Date   Signature

Problem 1   One of the important concepts we have discussed in this course, is *deviance* (for Gaussian regression, Poisson regression and logistic regression).

1. Explain what deviance is, and how it relates to *residual sum of squares* (RSS) for Gaussian regression.

2. Discuss how it relates to a *likelihood ratio test* (LRT) for comparing two nested regression models.

3. Discuss how deviance can be used to construct "ANOVA" tables for Poisson regression and logistic regression.

4. Discuss how deviance can be used to define residuals, for Poisson regression and logistic regression.