# Math 342W/642/742W

*Recitation – Day #13 (3.27.25)*

## I. More on Logistic Regression

(i) Which random variable is used to model $Y_i$?

(ii) What is $g_{pr_0}$, the default mode for $P(Y_i = 1)$?

(iii) Derive "*log-odds*" from the logistic model.

(iv) Define the two "*proper* scoring rules" for probability estimation:

## II. Polynomial Modeling

(i) What type of error does transforming raw features into exponentiated values help reduce?

(ii) What are ***first-order*** interactions?

(iii) What is ***Weierstrauss' Theorem***?

(iv) What is the distinction between $p_{raw}$ and $p$?

(v) What is the candidate set $\mathcal{H}$ when modeling with transformed (exponentiated) features?

(vi) What is the matrix $X$ associated with fitting a polynomial to a set of $n$ points?

(vii) What is ***Runge's Phenomenon*** and how does this phenomenon relate to modeling with high-ordered polynomials?

(viii) What is the distinction between *interpolation* and *extrapolation*?