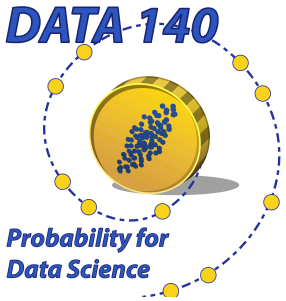

Spring 2026

WEEK 15 STUDY GUIDE

The Big Picture

We conclude the term with conditioning in the multivariate normal model, and inference in the standard multiple regression model.

- The regression line can be written in multiple forms, one of which extends to the case of multiple regression.
- Prediction based on multiple predictors has familiar properties: There is a general formula for the best linear predictor, which is a natural extension of the formula for simple regression; and if the underlying distribution is multivariate normal then the best linear predictor is also the best among all predictors.
- The multiple regression model with normal errors is fundamentally important in data science. Properties of the estimated parameters lead to straightforward methods of inference.

Week At a Glance

Mon 4/27	Tue 4/28	Wed 4/29	Thu 4/30	Fri 5/1
Regular OH 10AM - 3PM in Warren 101B	Lecture	Sections	Lecture	Mega Section
			General OH 3-5 PM in Warren 101B	
HW 12 Due HW 13 (Due 5PM Mon 5/4)				HW 13 Party 2-5 PM in Evans 330
Focus on understanding HW 12	Work through Chapter 24	Skim Section 25.4; work on HW 14	Work through Section 25.4	Work on HW 13

Reading, Practice, and Class Meetings

Book	Topic	Lectures: Prof. A.	Sections: TAs	Optional Additional Practice
Ch 24, 25	**Towards Multiple Regression** - 24.4 writes the regression equation in multiple different ways, each one illuminating a different property and making it easier to understand the corresponding formulas in multiple regression - 25.1, 25.2, 25.3 extend the corresponding simple regression sections (24.1, 24.3, 24.4) to the multivariate case; we will just talk through these and not do the details - 25.4 introduces the multiple regression model most commonly used in data science	Tuesday 4/28 - MSE in simple regression; connection with the bivariate normal - The big picture of the multivariate case - The multiple linear regression model: understanding the assumptions	Wednesday 4/29 - Ch 24 Ex 1, 3, 6	None; focus on the homework.
	Multiple Linear Regression - 25.4 continued: the estimates and their distribution under the model	Thursday 4/30 - Multiple linear regression model: parameter estimation and inference	Friday 5/1 - Ch 24 Ex 7 - Multiple regression multiple choice - Ch 23 Ex 5	