

MITx: 14.310x Data Analysis for Social Scientists

Heli

Bookmarks

- Module 1: The Basics of R and Introduction to the Course
- ▶ Entrance Survey
- Module 2: Fundamentals of Probability, Random Variables, Distributions, and Joint Distributions
- Module 3: Gathering and Collecting Data, Ethics, and Kernel Density Estimates
- Module 4: Joint,
   Marginal, and
   Conditional
   Distributions &
   Functions of Random
   Variable

Module 9: Single and Multivariate Linear Models > The Linear Model > The Multivariate Linear Model - Quiz

# The Multivariate Linear Model - Quiz

 $\square$  Bookmark this page

## **Question 1**

1/1 point (graded)

We can extend our bivariate linear model to a multivariate linear model:

$$Y_i=eta_0+eta_1x_{1i}+eta_2x_{2i}+\ldots+eta_kx_{ki}+\epsilon_i ext{ for } i=1,2,\ldots,n$$

We can write the multivariate linear model using matrix notation:  $Y = X\beta + \epsilon$ . In matrix notation, what would the dimensions of Y be?

- a. n x n
- b. k x k
- c. n x 1
- d. k x 1

- Module 5: Moments of a Random Variable,
   Applications to Auctions,
   Intro to Regression
- Module 6: Special
   <u>Distributions, the</u>
   <u>Sample Mean, the</u>
   <u>Central Limit Theorem,</u>
   and Estimation
- Module 7: Assessing and Deriving Estimators -Confidence Intervals, and Hypothesis Testing
- Module 8: Causality,
   Analyzing Randomized
   Experiments, &
   Nonparametric
   Regression
- Module 9: Single and Multivariate Linear Models

**The Linear Model** 

due Nov 28, 2016 05:00 IST

### **Explanation**

Y would have n rows (one row for each observation). Each observation has one outcome value.

Submit

You have used 1 of 2 attempts

Correct (1/1 point)

### **Question 2**

1/1 point (graded)

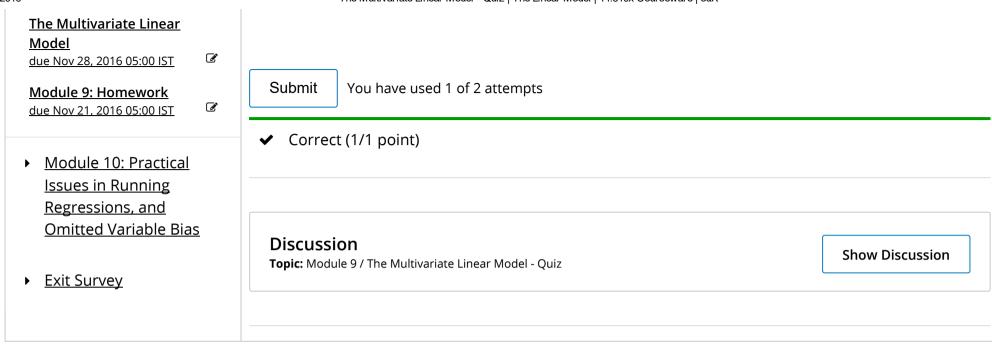
In matrix notation, what would the dimensions of X be?

- a. n x 1
- b. n x (k-1)
- o c. n x k
- d. n x (k+1)

### **Explanation**

Ø,

X would have n rows (one row for each observation). Each row or observation has k+1 values. There are k measures for each observation, and the extra "+1" is there because X's left-most column vector has all values exactly equal to 1. This column vector multiplies with  $\beta_0$ .



© All Rights Reserved



© 2016 edX Inc. All rights reserved except where noted. EdX, Open edX and the edX and Open EdX logos are registered trademarks or trademarks of edX Inc.















