Final Exam (Non-Proctored)

Due Dec 3 at 11:55pm **Points** 50 **Questions** 10 **Available** Nov 26 at 12am - Dec 3 at 11:55pm 8 days
Time Limit 60 Minutes

Instructions

Multiple Choice: Each question is worth 5 points.

Time Limit: 60 Minutes

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	38 minutes	45 out of 50

Score for this quiz: **45** out of 50
Submitted Nov 30 at 1:48pm
This attempt took 38 minutes.

Question 1 — 5 / 5 pts

Which model(s) is (are) linear models?

- Y = b0 + b1*X1
- Y = b0 + b1*X1 + b2*X1^2
- ln(Y) = b0 + b1*ln(X1)
- All of the models presented are possible answers

Correct!

Question 2 — 5 / 5 pts

When comparing linear regression models of different sizes (dimension), which metric(s) can be used to compare models?

- AIC
- BIC
- R-Squared
- Both R-Squared and AIC
- Both AIC and BIC

Correct!

Question 3

5 / 5 pts

When using AIC for variable selection we select the model with the:

- Largest AIC value
- Any model with a positive AIC value

Correct!

- Smallest AIC value

Question 4

5 / 5 pts

Multicollinearity can be detected using:

- R-Squared
- The Overall F-test

Correct!

- The condition index of the matrix X'X, where ' denotes the transpose operator.
- A t-test on the regression coefficient.

Question 5

5 / 5 pts

Remedies for heteroscedasticity include:

- A transformation of a predictor variable.
- A transformation of the response variable.
- Principal Components Analysis

Correct!

- Transformations of a predictor variable or the response variable or both.

Question 6

5 / 5 pts

Which method of factor estimation provides a formal statistical test for the number of factors in the common factor model?

- Principal Factor Analysis
- Iterative Principal Factor Analysis

Correct!

- (•) Maximum Likelihood Factor Analysis
- Least Squares Factor Analysis
- All: Principal Factor Analysis, Iterative Principal Factor Analysis, Maximum Likelihood Factor Analysis, and Least Squares Factor Analysis

Question 7

5 / 5 pts

Principal Component Analysis can be used:

- As a remedy for heteroscedasticity in regression models
- As a remedy for multicollinearity in regression models
- For dimension reduction for clustering
- As a remedy for both heteroscedasticity and multicollinearity in regression models

Correct!

- (•) As a remedy for multicollinearity in regression models and for dimension reduction for clustering

Question 8

5 / 5 pts

Which linear regression metrics increase monotonically as one adds predictor variables to the regression model?

- Average Error
- AIC
- Mallow's Cp

Correct!

- (•) R-Squared
- Both Average Error and R-Squared

Question 9

0 / 5 pts

In linear regression variable selection can be performed using which of these metrics?

- R-Squared
- Adjusted R-Squared

You Answered

- Mallow's Cp

Correct Answer

- All: R-Squared, Adjusted R-Squared, and Mallow's Cp

Question 10

5 / 5 pts

In a multivariate data set with variables X1 – Xk, Factor Analysis can be used to explain:

Correct!

- the correlation structure between X1-Xk
- the multivariate distribution of X1-Xk
- the total variance of X1-Xk
- both the correlation structure and the total variance of X1-Xk

Quiz Score: **45** out of 50