1. An Economics department at a large state university keeps tract of its majors’ starting salaries. Does taking econometrics effect starting salary? Let Sal = starting salary in dollars, GPA = grade point average on a 4.0 scale, Metrics = 1 if the student took econometrics, and 0 otherwise. Using a sample size of 50, we obtain

Sal(hat) = 24200 + 1643GPA + 5033METRICS, R-squared=0.74

(se) (1078) (352) (456)

The variance-covariance matrix of the estimated coefficients is

|  |  |  |  |
| --- | --- | --- | --- |
|  | Intercept | GPA | Metrics |
| Intercept | 116299737 | -370463 | -124114 |
| GPA | -370463 | 124108 | 22428 |
| Metrics | -124114 | 22428 | 208216 |

1. **Show how you can obtain the standard error of the coefficient on GPA, Metrics from the variance-covariance matrix.**
2. **At the 95% level, testing the testing the overall significance of joint hypotheses.**

**(Hint: H0: B1 = 0, B2 = 0)**

1. **At the 95% level, test the hypothesis that the marginal effect of GPA on starting salary is equal to the marginal effect of Metrics on starting salary. (Hint: H0: B1 = B2)**