

STATISTICS 3
WS 2017 (Mag. Thomas Forstner)

Course-Number: 366.542

- 15) The rate of oxygen consumption of birds is measured at different environmental temperatures:

Temperature (Celsius)	-18	-15	-10	-5	0	5	10	19
oxygen consumption (ml/g/hr)	5.2	4.7	4.5	3.6	3.4	3.1	2.7	1.8

- a) Calculate the estimators for a linear regression model of oxygen consumption rate based on temperature.
 - b) Formulate appropriate hypotheses about β_1 and construct a test.
 - c) Calculate a 95% confidence interval for β_1 .
- 16) Estimate the linear regression relating the influence of hen weights (x) on feed intake (y) in a year:

x [kg]	2.3	2.6	2.4	2.2	2.8	2.3	2.6	2.4	2.5
y [kg]	43	46	45	46	50	46	48	49	46

- a) Calculate the estimators for this linear regression model.
- b) Formulate appropriate hypotheses about β_1 and construct a test.
- c) Calculate a 95% confidence interval for the regression line.
- d) Calculate a 95% prediction interval for the regression line.