

## **Course Description**

### **STA4210 | Regression Analysis | 4.00 credits**

This course is for students majoring in data analytics, systems engineering, and related disciplines who require advanced in statistical analysis. Students will learn the principles and procedures of correlations and regression analysis and how to allocate information in data sets using statistical software. Prerequisite: STA3164

## **Course Competencies**

**Competency 1:** The student will demonstrate an understanding of the association and correlation of two variables by:

1. Calculating a Pearson product-moment correlation coefficient
2. Generating and interpreting scatter plots
3. Interpreting the strength of the coefficient of correlation
4. Forming the hypothesis to test the significance of the parameter
5. Developing compelling statistical inferences
6. Utilizing the p-value approach with the help of statistical software (such as SPSS, Minitab, and R)

**Competency 2:** The student will demonstrate an understanding of inferential procedures for the regression analysis for two variables by:

1. Constructing the Simple Least Square Regression Equation (SLSR)
2. Interpreting the magnitude of the quality of the SLSR line fit
3. Interpreting the R square value
4. Interpreting the slope of the mode
5. Interpreting the vertical axis intercept

**Competency 3:** The student will demonstrate an understanding of the inferential procedures for multiple variables regression analysis by:

1. Constructing the multiple variable regression model
2. Interpreting the magnitude of the quality of the model fit
3. Interpreting the strength of the model
4. Interpreting the scope of the model parameters according to the field of application

**Competency 4:** The student will demonstrate an understanding of the inferential procedures for the stepwise regression analysis by:

1. Constructing the stepwise regression model
2. Interpreting the magnitude of the quality of the model fit
3. Interpreting the strength of the model
4. Interpreting the scope of model parameters according to the field of application

**Competency 5:** The student will demonstrate the ability to communicate technical conclusions by:

1. Applying scientific methods commonly used in different fields of scientific endeavor
2. Evaluating, processing, and integrating the results
3. Solving problems in a collective team environment
4. Presenting results and recommendations orally, in writing, and/or with a slide presentation

## **Learning Outcomes:**

- Communicate effectively using listening, speaking, reading, and writing skills
- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Use computer and emerging technologies effectively