SYLLABUS

Course	PPGFIT3925 - Fundamentos de Estatística e Métodos Quantitativos I (Principles of Statistics and Quantitative Methods I)
WorkLoad	60 hours **Credits** 4 credits
Level	Master
Type	Mandatory
Concentration Area	Logistics, Operation and Transportation Planning
Professor	Alan Ricardo da Silva (alansilva@unb.br)
Semester	2024/1 (March 18th 2024 to July 15th 2024)
Class Meetings	Tuesday: 10:00 PM – 11:50 PM Thursday: 10:00 PM – 11:50 PM
Location	PPGT Classroom
Course Objective	The objective of this course is to present basic concepts of statistics and quantitative methods, preparing the student for the use of techniques usually adopted in treatment and data analysis.
Teaching Method	Theoretical classes for the presentation of programmatic content, and resolution of exercises in the classroom.
Program	**1.** Descriptive Statistics 1.1 - Scales of measurement 1.2 - Presentation of numerical data: Tables and Graphs 1.3 - Frequency distribution 1.4 - Measures of central tendency and variability or dispersion 1.5 - Skewness and kurtosis **2.** Probability 2.1 - Random trial, sample space, events, axioms and basic theorems 2.2 - Discrete and continuous random variables 2.3 - Main probabilistic models: Uniform, Bernoulli, Binomial, Poisson, Geometric, Hypergeometric, Continuous Uniform, Normal and Exponential. **3.** Sampling and Estimation 3.1 - Population and sample. Census and sampling 3.2 - Random sample. Estimator and estimate 3.3 - Sample size for a simple random sample 3.4 - Point and interval estimation **4.** Hypothesis Testing 4.1 - General formulation of a parametric test. Types of errors. 4.2 - Tests for means and variances 4.3 - The Chi-Square Test 4.4 - Analysis of variance **5.** Correlation and Regression 5.1 - Correlation and the linear correlation coefficient 5.2 - Simple linear regression 5.3 - Analysis of variance in regression
Evaluation Criterion	**1 – EVALUATION** The student's use will be evaluated through: Exam 1 (Content: items 1 and 2 of the program) – 05/09/2024;

Exam 2 (Content: items 3 and 4 (4.1 and 4.2) of the program)) – 06/13/2024;

Exam 3 (Content: items 4 (4.3 and 4.4) and 5 of the program) – 07/11/2023;

2 – FINAL SCORE
Arithmetic mean of the 3 exams: FS=(Exam1+Exam2+Exam3)/3

3 – CONDITIONS FOR APPROVAL
To be approved, the student must meet all the following conditions related to:
- get FS $\geq$ 5.0;
- get frequency $\geq$ 75%.

4 – FINAL GRADE

The final grade will be assigned in accordance with the following criterion:

Grade	Final Score (FS)
SS	FS $\geq$ 9.0
MS	$7.0 \leq FS \leq 8.9$
MM	$5.0 \leq FS \leq 6.9$
MI	$3.0 \leq FS \leq 4.9$
II	$0.1 \leq FS \leq 2.9$
SR	FS = 0.0

Bibliography

1. ZAR, Jerrold H. *Biostatistical Analysis*. Pearson, fifth edition, 2010.

2. DÍAZ, Francisca Rius e LÓPEZ, Francisco Javier Barón, *Bioestatística*. Thomson Learning, SP, 2005.

3. WASHINGTON, Simon P., KARLAFTIS, Matthew G., MANNERING, Fred L. *Statistical and Econometric Methods for Transportation Data Analysis*. CRC Press, second edition, 2010.

4. BARBETTA, Pedro Alberto. Estatística Aplicada às Ciências Sociais. 5ª Edição Revisada. Florianópolis: Editora da UFSC, 2004.

5. BUSSAB, Wilton de O., MORETTIN, Pedro A. Estatística Básica. 5ª Edição. São Paulo: Saraiva, 2002.

Brasília, March 18th 2024.

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Prof. Alan Ricardo da Silva