

Course Syllabi

1. MAES-00098 STATISTICS

2. Instructor:

- Silvia Alexandra Peña Gonzalez

3. Bibliography

- PROBABILIDAD Y ESTADISTICA PARA INGENIERIA Y

CIENCIAS/[https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-](https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-detail.pl?biblionumber=63513&query_desc=ti%2Cwrdl%3A%20Probabilidad%20y%20estad%20C3%A)

[detail.pl?biblionumber=63513&query_desc=ti%2Cwrdl%3A%20Probabilidad%20y%20estad%20C3%A](https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-detail.pl?biblionumber=63513&query_desc=ti%2Cwrdl%3A%20Probabilidad%20y%20estad%20C3%A)
Dstica%20para%20ingenier%20C3%ADa%20y%20ciencias, Walpole, Ronald E., 2009

- <https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-detail.pl?biblionumber=47991>, Spiegel, Murray R, 2006

- [https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-](https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-detail.pl?biblionumber=161904&query_desc=kw%2Cwrdl%3A%20Triola%20F.%20Mario%20Es)

[detail.pl?biblionumber=161904&query_desc=kw%2Cwrdl%3A%20Triola%20F.%20Mario%20Es](https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-detail.pl?biblionumber=161904&query_desc=kw%2Cwrdl%3A%20Triola%20F.%20Mario%20Es)
tad%20C3%ADstica%2C, Triola F. Mario,, 2018

4. Specific Course Information

- a. Statistics is a subject that is part of epistemology and research methodology, whose purpose is to establish the knowledge base for data collection, representation, organization. This tool is very useful in making reasonable decisions with scientific judgment against uncertainty and variation, based on data analysis. Statistics uses probability, sampling theory, estimates, data adjustment (regressions), and time series analysis. stica seeks to provide future professionals with relevant knowledge that allows them to understand, describe, and solve problems in the field of Chemical Engineering, using specialized software packages of the area, for the effective resolution of problems. The contents and learning results of this subject are in full agreement with the graduation profile of the Chemical Engineer in its numerals: 1 and 2.

b. Prerequisites:

- EDUC-00025 Research methodology
- TICS-00024 Programming languages
- MAES-00094 Comprehensive calculation

5. Learning Objectives of the Course

- a. Apply statistical tools that allow the student to carry out data analysis, with the aim of making appropriate decisions in the field of Chemical Engineering. - Apply descriptive statistics to obtain relevant information that allows effective decision-making in the field of action of Chemical Engineer - Know and apply probability theory and principles of statistical inference to draw conclusions from data analysis and for effective decision-making in the field of chemical engineering. - Analyze business process data using statistical software that facilitates the interrelation and analysis of its different elements in order to achieve organizational objectives.

b. Learning Outcomes

1. Collect and present data in tables and other related graphs, process and analyze data through the calculation of basic statistical tools: central trend measures, dispersions.
2. It analyses a population using statistical sampling techniques to meet the main characteristics of the whole.
3. Calculate the odds of the different events of interest. using the basic principles of probability.
4. Calculate the odds of the different events of interest. using the basic principles of probability.

5. Analyze data behaviour based on product demand over time.
6. Collect and present data in tables and other related graphs, process and analyze data through the calculation of basic statistical tools: central trend measures, dispersions.
7. Collect and present data in tables and other related graphs, process and analyze data through the calculation of basic statistical tools: central trend measures, dispersions.
8. Calculate the odds of the different events of interest. using the basic principles of probability.
9. Managing the main precepts and applications of inferential statistics as a basis for an investigative process in chemical engineering
10. Managing the main precepts and applications of inferential statistics as a basis for an investigative process in chemical engineering

6. Course Topics

1. Description statistics. general
2. Basic likelihood
3. Introduction to problems of problems
4. Some distributions of discredit likelihood
5. Some continuous distributions of likelihood
6. Sampling theory
7. Hypothesis tests
8. Return and correlation
9. Analysis of time series