# APPLIED STATISTICS UNDERGRADUATE CERTIFICATE

## Introduction

Please click here (http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/mathematical-statistical-sciences/) to see Mathematical and Statistical Sciences department information.

There is a growing need for qualified statistical analysts of the ever-increasing amounts of data collected in business, industry, and government. The Certificate in Applied Statistics program is designed to give students a strong background in statistical methodology and data analysis in preparation for opportunities in the workforce or for graduate studies.

Students will gain competence in such topics as descriptive statistics, estimation, confidence intervals, probability and inferential techniques, simple and multiple regression, analysis of variance, and more advanced topics. Students can focus on a particular application area such as economics, psychology, sociology, geology or environmental science through the choice of an elective course and the data analysis project.

Programs are offered at the undergraduate and graduate level.

## Program Delivery

- This is an on-campus program.

## Declaring This Certificate

- Admission requirements: Completion of calculus I, II and III as well as linear algebra, each at a B- or above. Students enrolled in the certificate program will be expected to utilize concepts from calculus and linear algebra without the use of technology, e.g., evaluation of limits, derivatives and integrals.
- The certificate can be declared by contacting the Director of Statistical Programs.
  **Coordinator**: Joshua French Ph.D.
  **E-mail**: Joshua.French@ucdenver.edu
  **Web site**: https://clas.ucdenver.edu/mathematical-and-statistical-sciences/undergraduate-certificate-applied-statistics (https://clas.ucdenver.edu/mathematical-and-statistical-sciences/undergraduate-certificate-applied-statistics/)

These program requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences reserves the right to make exceptions and substitutions as judged necessary in individual cases. Therefore, the College strongly urges students to consult regularly with their Applied Statistics advisor to confirm the best plans of study before finalizing them.

## General Requirements

Students must satisfy all requirements as outlined below and by the department offering the certificate.

- Click here (http://catalog.ucdenver.edu/cu-denver/undergraduate/academic-policies-procedures/) for information about Academic Policies.

## Certificate Requirements

1. Students must complete a minimum of 12 credits hours.
2. All credits for the certificate must be taken at the upper division level (3000-level and above).
3. Students must earn a minimum grade of B-(2.7) in all courses that apply to the certificate and must achieve a minimum cumulative certificate GPA of 3.0. All graded attempts in required and elective courses are calculated in the certificate GPA. Courses taken using P +/P/F or S/U grading cannot apply to certificate requirements.
4. Since a certificate is a University of Colorado Denver certification of a student's specialized knowledge in an advanced subject area, all courses in the certificate program are expected to be taken in residency at the University of Colorado Denver.

## Program Restrictions, Allowances and Recommendations

1. Students must be enrolled in one course per year to maintain their status in the certificate program.
2. Certificates must be completed within three years from matriculation.

| Code | Title | Hours |
|---|---|---|
| *Complete the following required courses:* | | *9* |
| Fundamental course in probability | | |
| MATH 3810 | Introduction to Probability (recommended) | |
| or MATH 3800 | Probability and Statistics for Engineers | |
| Fundamental course in mathematical statistics | | |
| MATH 3382 | Statistical Theory | |
| Advanced applications course | | |
| MATH 4387 | Applied Regression Analysis | |
| *Complete three credits from the following elective courses:* | | *3* |
| Any statistics course in the Department of Mathematical and Statistical Sciences at the 4000 level or higher, pre-approved by the Director of Statistical Programs. [1] | | |
| ECON 4030 | Data Analysis with SAS | |
| ECON 4150 | Economic Forecasting | |
| ECON 4811 | Introduction to Econometrics | |
| **Total Hours** | | **12** |

[1] MATH 4830 Applied Statistics cannot apply toward the certificate.

To learn more about the Student Learning Outcomes for this program, please visit our website (https://clas.ucdenver.edu/mathematical-and-statistical-sciences/undergraduate-certificate-applied-statistics/).