

Data Science (DATA)

College of Natural Science and Mathematics

Department of Mathematics and Statistics (<https://www.uaf.edu/dms/>)
907-474-7332

College of Engineering and Mines

Department of Computer Science (<https://www.cs.uaf.edu/>)
907-474-2777

DATA F265 Introduction to Data Science

3 Credits

Offered Spring

An introduction to modern data science including computation using R/Rstudio, basic statistical inference, and machine learning. Also data cleaning, data preprocessing, data ethics and data reporting. Designed to concentrate on applications of data science.

Prerequisites: MATH F105 or appropriate Math placement score.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DATA F320 High Performance Computing Literacy

1 Credit

Offered Spring

Unlock the power of supercomputing in this introductory High Performance Computing (HPC) course, designed for absolute beginners. Get hands-on experience with the UAF Chinook Supercomputing Cluster and explore the world of high-performance computing. This is targeted to students, scientists, engineers, scholars and anyone eager to develop their understanding of HPC.

Prerequisites: CS F103 or CS F201.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DATA F321 Artificial Intelligence and Machine Learning Literacy

1 Credit

Offered Spring

Explore artificial intelligence in this beginner-friendly course, offering a clear understanding of modern AI capabilities and hands-on experience with popular AI tools and Python libraries—no complex math required. Perfect for anyone starting their AI journey.

Prerequisites: CS F103; DATA F265.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DATA F322 Deep Learning and Generative AI Literacy

1 Credit

Offered Spring

Explore Deep Learning in this beginner-friendly course, offering a clear understanding of modern deep neural networks and generative AI capabilities and hands-on experience with popular Python libraries.

Prerequisites: CS F103; DATA F265; DATA F320; DATA F321.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DATA F371 Data Ethics

3 Credits

Offered Fall

This course explores the ethical implications of data collection, processing, storage and use. It introduces students to the major ethical challenges in the data-driven world, covering topics like privacy, bias, algorithmic fairness, transparency and accountability. The course combines theoretical discussions with practical applications and case studies.

Prerequisites: DATA F265; junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DATA F470 Senior Capstone

3 Credits

Offered Spring

A project-based course to apply data science tools and techniques to a real data science application for a customer. Requires integration and application of knowledge and skills acquired in earlier coursework.

Prerequisites: CS F404; CS F406; STAT F401.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DATA F474 Data Wrangling and Data Visualization

3 Credits

Offered Spring Even-numbered Years

Importing and tidying messy, small-to-moderate size data sets (less than 10,000 observations), and creating professional quality graphics to visualize a broad spectrum of data types and statistical results.

Prerequisites: STAT F200X or STAT F300.

Recommended: Some familiarity with R or Python would be helpful but is not required.

Cross-listed with STAT F474.

Stacked with DATA F674; STAT F674.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DATA F674 Data Wrangling and Data Visualization

3 Credits

Offered Spring Even-numbered Years

Importing and tidying messy, small-to-moderate size data sets (less than 10,000 observations), and creating professional quality graphics to visualize a broad spectrum of data types and statistical results.

Prerequisites: STAT F401 and ((MATH F371 and MATH F408) or STAT F651).

Recommended: Some familiarity with R or Python would be helpful but is not required.

Cross-listed with STAT F674.

Stacked with DATA F474; STAT F474.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus