



# Student Handbook



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The program specifics are reviewed on the

1. Earn at least a grade of C in each of the for-credit courses listed below within one of the following three-course pathways:

**Foundations of Data Structures and Algorithms**

# Curriculum & Requirements

## Graduate Certificates

A graduate certificate is a sequence of courses totaling 9-12 credit hours that has been approved by the Graduate School at CU Boulder. Students may enroll in graduate certificates as either non-degree-seeking or degree-seeking students.

CU certificates on Coursera are **stackable**, meaning degree-seeking students can count credits first earned as part of a CU certificate toward the 30-

- DTSA 5003: Hypothesis Testing for Data Science

Students must complete an additional 6 credits and can choose to complete any 2 of the following 3 specializations (6 credits):

**Introduction to Statistical Learning for Data Science (3 credits)**

- DTSA 5020: Statistical Learning for Data Science: Regression and Classification
- DTSA 5021: Statistical Learning for Data Science: Resampling, Selection and Splines
- DTSA 5022: Statistical Learning for Data Science: Trees, SVM, and Unsupervised Learning

**Machine Learning (3 credits)**

- DTSA 5509: Introduction to Machine Learning – Supervised Learning
- DTSA 5510: Unsupervised Algorithms in Machine Learning
- DTSA 5511: Introduction to Deep Learning

**Statistical Modeling for Data Science (3 credits)**

- DTSA 5011: Modern Regression Analysis in R
- DTSA 5012: ANOVA and Experimental Design
- DTSA 5013: Generalized Linear Models and Nonparametric Regression

In order to earn a certificate, students must receive a minimum grade of a C or higher in each course. The cumulative GPA for certificate courses must be 3.0 or higher.

**Certificates from Other CU Boulder Degrees on Coursera (“Outside Certificates”)**

MS-D





- DTSA 5502: Trees and Graphs: Basics
- DTSA 5503: Dynamic Programming, Greedy Algorithms    CSCA 5414\*
- **Data Science Foundations: Statistical Inference for Data Science (3 credits)**
  - DTSA 5001: Probability Theory: Foundation for Data Science
  - DTSA 5002: Statistical Inference for Estimation in Data Science
  - DTSA 5003: Hypothesis Testing for Data Science
- **Vital Skills for Data Scientists (4 credits)**
  - DTSA 5301: Data Science as a Field
  - DTSA 5302: Cybersecurity for Data Science
  - DTSA 5303: Ethical Issues in Data Science
  - DTSA 5304: Fundamentals of Data Visualization    CSCA 5702\*
- **Machine Learning (3 credits)**
  - DTSA 5509: Introduction to Machine Learning: Supervised Learning  
CSCA 5622\*
  - DTSA 5510: Unsupervised Algorithms in Machine Learning    CSCA 5632\*
  - DTSA 5511: Introduction to Deep Learning    CSCA 5642\*
- **Statistical Modeling (3 credits)**
  - DTSA 5011: Modern Regression Analysis in R
  - DTSA 5012: ANOVA and Experimental Design
  - DTSA 5013: Generalized Linear Models and Nonparametric Regression
- **Data Mining Foundations and Theory (3 credits)**
  - DTSA 5504: Data Mining Pipeline    CSCA 5504\*
  - DTSA 5505: Data Mining Methods    CSCA 5512\*
  - DTSA 5506: Data Mining Project    CSCA 5522\*
- **Databases (2 credits)**
  - DTSA 5733: Relational Database Design
  - DTSA 5734:

Coursera can be applied toward MS-DS elective credit requirements. See [Other Elective Courses](#) for details.)

- **Software Architecture for Big Data (3 credits)**
  - DTSA 5507: Fundamentals of Software Architecture for Big Data    CSCA 5008\*
  - DTSA 5508: Software Architecture Patterns for Big Data    CSCA 5018\*
  - DTSA 5714: Applications of Software Architecture for Big Data    CSCA 5028\*
- **High-Performance and Parallel Computing (1 credit)**
  - DTSA 5701: Introduction to High-Performance and Parallel Computing
- **Data Science Methods for Quality Improvement (3 credits)**
  - DTSA 5704: Managing, Describing, and Analyzing Data
  - DTSA 5705: Stability and Capability in Quality Improvement
  - DTSA 5706: Measurement System Analysis
- **Deep Learning Applications for Computer Vision (1 credit)**
  - DTSA 5707: Deep Learning Applications for Computer Vision    CSCA 5812\*
- **Effective Communication (2 credits)**
  - DTSA 5842: Effective Communication: Writing, Design and Presentation
  - DTSA 5843: Effective Communication Capstone Project
- **Statistical Learning for Data Science (3 credits)**
  - DTSA 5020: Regression and Classification
  - DTSA 5021: Resampling Selection and Splines
  - DTSA 5022: Trees, SVM, and Unsupervised Learning
- **Text Marketing Analytics (3 credits)**
  - DTSA 5798: Supervised Text Classification for Marketing Analytics
  - DTSA 5799: Unsupervised Text Classification for Marketing Analytics
  - DTSA 5800: Network Analysis for Marketing Analytics

The MS-DS program will continue to roll out additional electives that will be available for selection. Please see the [Curriculum](#) page for up-to-



Students wishing to complete degrees in more than one program must complete all the requirements for both degrees with no shared or overlapping course work.

## Non-Credit and For-Credit Experiences on Coursera

### Non-Credit & Coursera Completion Certificates

All MS-DS courses are hosted on the Coursera platform. A typical non-credit **course** includes content, discussion forums, and homework assignments of level and scope similar to assignments made in an equivalent on-campus course in the same subject. Many of the courses are organized into sequences called **specializations**, a series of courses linked together to cover a topic more fully. Non-credit students may use specializations to earn course and specialization completion certificates from Coursera, but non-credit courses and specializations do not carry CU Boulder credit and are not recorded on CU Boulder transcripts.

Non



[MS-CS on Coursera](#) programs may offer different credit hour amounts. It is your responsibility to track your progress and ensure you meet all graduation requirements.

Individual courses in the program have an anticipated completion timeline of between four and six weeks, maintaining the rigor of the on-campus experience in an online setting by narrowing and focusing the content on a specific topic.

## **Calendar & Course Sessions**

Non-credit course sessions are typically self-paced with assignment due dates programmed and updated by the Coursera platform.

For-credit sessions run in 8-week increments throughout the calendar year, so students have the ability to upgrade and take a course for credit, complete coursework and any additional for-credit requirements, and earn credit and a grade in a fashion approximating an on-demand service.

Students enrolled in a for-credit session will be expected to complete and submit work by the 8-week session end date. At the end of a for-credit session, the session closes; all enrolled students are assigned a letter grade.

We look forward to each student succeeding in this program. To that end, we recommend students take a lighter course load for their first 8-week session enrolling in only 1 or 2 courses. By doing so, students can best determine time commitment and workload

on a Friday, the last time you could schedule a proctored exam or project would be at 4:50 pm that Tuesday.

To secure your desired proctoring session time, log into ProctorU to schedule your session as soon as you know your desired session date and time.

View the [Calendar](#) for each session to see deadlines for scheduling and completing proctored exams and projects.

## Financial Information

### Tuition

Tuition is assessed at a linear rate based on credit hours and may vary by program. Please refer to the [Bursar's Office](#) for officially published tuition rates. Students are granted access to for-credit components of a course after their tuition has been paid and verified.

For accepted payment methods, please refer to the Bursar's [Degrees on Coursera](#).

Tuition payments cannot be rolled over to future sessions.

If a tuition payment does not process successfully and/or students have a past due balance, a fee is assessed. This fee prevents students from registering for future courses at CU Boulder until the past due amount is paid in full. Former or current CU Boulder students wishing to enroll in MS-DS on Coursera courses who have unpaid debts may have these debts deducted from payments made to the MS-DS on Coursera program and before MS-DS on Coursera tuition charges are paid. If applicable, the students may be dropped from enrolled classes for non-payment.





Other institutions may accept transfer credit from the MS-DS program at their discretion, based upon their transfer of credit standards.

## Changing Degree Programs

Students may change degree programs by following the steps outlined in this section. Students are responsible for understanding possible consequences of changing programs *before* they take the steps below.

1. Be sure you understand the differences between your current degree program and the program you are hoping to change to.
  - **Degree structure:** CU Boulder degrees on Coursera share a similar structure that uses performance-based admission, pay-as-you-go tuition, and options for both non-credit and for-credit experiences.
  - **Recommended prerequisite knowledge:** Though CU degree programs on Coursera do not have formal prerequisite requirements, each program lists particular subjects that you should be familiar with to be successful.
  - **Admissions requirements:** Ensure you understand the available pathway courses, as well as grade and GPA requirements for both programs.
  - **Curriculum:** Make sure you understand if and how any coursework you have completed will apply to the new degree program you are considering. Determine how any [Cross-listed Courses](#) or [Other Elective Courses](#) you have already completed will affect your degree progress.
  - **Grade requirements:** Programs may have different minimum grade requirements for admission and graduation. For example, the MS-DS requires a C or better on all courses for graduation (and a 3.0 pathway GPA for admission), whereas the MS-CS requires a B or better on all breadth courses and a C or better on all elective courses for graduation (and a B or better on each pathway course for admission). All programs require students to maintain a 3.0 cumulative GPA for admission and graduation.
  - **Tuition:** Tuition rates vary by program.
2. Indicate your change in degree interest properly, as noted below:
  - DO indicate degree interest on your new enrollment form. Start using your new degree enrollment form to select, enroll in, and pay for for-credit courses. Indicate that you are interested in pursuing a degree on your new enrollment form.



## **Grade Replacement**

The [Grade Replacement Policy](#)

The following examples help to illustrate the timeline for students to drop and receive a refund:

- *Enrolled Before Class Start:* A student enrolls in a class before it begins. Class starts on the 1st of the month. The deadline for the student to drop this class and receive a refund is 11:59 pm [MT](#) on the 14th of that same month.
- *Enrolled After Class Start:* A student enrolls in a class after it begins. Class starts on the 1st of the month, but the student enrolls on the 10th of the month. The deadline for this student to drop the class and receive a refund is 11:59 pm [MT](#) on the 23rd of that same month.

If a student enrolls in a course and does not complete the course, tuition payments cannot be rolled over to future sessions.

### **Course Withdrawal**

Students who request to drop the course after the 14-day period and who have not accessed the restricted content (e.g., password quiz, honor code verification, final assessment such as final exam/project, etc.) may withdraw from the course until the session end date, prior to 17:00 hours (5:00 pm Colorado [Mountain Time](#)). When a student withdraws from a course under these conditions, they are not eligible for a refund and will receive a grade of W on their academic record. W grades have no bearing on GPA and credit total.

Neither Coursera, nor the University of Colorado, nor the Data Science program at CU Boulder is responsible for students who delay too long and experience technical or  
hen  
making these kinds of decisions.

As noted under [Tuition](#), if a tuition payment does not process successfully, a financial  
vented from  
registering for future courses at CU Boulder until the outstanding amount is paid in full.

See [Program Withdrawal](#) for more information about withdrawing from the MS-DS program.

### **Grades**

Students who complete some but not all coursework and who specifically do not complete the password quiz to unlock the final exam (or equivalent, like an honor code verification) will be assigned administrative Ws after the session end date passes.

Grades of Incomplete (I) are not assigned as part of the program, and a Pass-Fail (P/F) grading basis is not offered.

## Academic Standing, Time Limit, Discontinuance & Withdrawal

### Academic Standing

Degree-seeking students admitted to the MS-DS are expected to maintain a cumulative GPA of 3.00 or higher for good academic standing in the program and to earn the degree.

**academic recovery.** The student will remain in academic recovery until the cumulative GPA is raised to 3.00, at which point the student is returned to good academic standing.

**academically dismissed** from the degree program. Such students may continue to take for-credit courses as non-degree-seeking and may be able to earn a certificate but cannot earn a degree. To be reinstated to the degree program after dismissal, the student must raise their cumulative GPA to 3.00 and complete the other requirements for admission, including the successful completion of a new pathway specialization.

The MS-DS degree cannot be awarded until the minimum 3.00 cumulative GPA has been achieved.

### Time Limit

Courses used toward the degree must have been completed 6(m)-6(i)7Mu2056000272t

## Discontinuance

Students admitted to the MS-DS degree program are not otherwise required to take a minimum number of credit hours over any given period of time and are not required to apply for a leave of absence when not enrolled in courses. However, students admitted to the degree program who have not enrolled for two years will be discontinued until they enroll in a new for-credit course. At that point, the student will automatically be reinstated.

## Program Withdrawal

Students admitted to the MS-DS on Coursera program may formally withdraw from the program by contacting the academic program advisor who will, in turn, notify the Office of the Registrar to discontinue the student.

Non-degree seeking students (not admitted to the degree program) may simply stop enrolling in future courses. No withdrawal formalities of any sort are necessary.

See [Course Withdrawal](#) for more information about withdrawing from individual courses.

## Privacy Policy

to the protection of individual privacy. See the [CU Boulder Privacy Statement](#) for details.

In order to preserve the integrity of this program, some exams and projects will have live proctoring managed by ProctorU. Read the [ProctorU Privacy Policy](#) for details.

## Program Faculty, Course Facilitators, Degree Governance & Student Support

### Program Faculty

All courses and specializations affiliated with the MS-DS are designed and taught by instructors with Graduate School faculty status.

### Course Facilitators

Course facilitators typically graduate students knowledgeable in the subject matter will assist in administering courses. Course facilitators participate in the course discussion forums, respond to student feedback, address issues with the course and its







## Petition, Appeal & Grievance Issues

Petitions, appeals, connectivity issues and grievances should be handled at the lowest level possible, within the individual course if appropriate. This policy applies to platform issues as well as discussion forum, course content, assessment and degree issues.

Concerns regarding platform issue team at [msds-support@colorado.edu](mailto:msds-support@colorado.edu).

Learning management system issues (i.e., CU Boulder software as distinct from Coursera software) should be directed to the CU Boulder Office of Information Technology ([oithelp@colorado.edu](mailto:oithelp@colorado.edu)). This includes issues with Canvas LMS, the platform where all CU Boulder students must complete a non-credit Mandatory Community Equity Training course after program admission. See the [Current Students](#) page for course details.

Concerns regarding discussion forum, content, assessment, and degree issues should not be resolved. If the student cannot resolve the issue, he or she will escalate the issue through the following resolution hierarchy:

1. Course Facilitator
2. Course Coordinator
3. Program Manager
4. Instructor of Record
5. Faculty Director
6. Department chair and Dean of Appropriate School if applicable, or Graduate School dean as determined by the Faculty Director.

Concerns regarding the degree itself, and not having to do with a particular course, follow a different pathway. These should begin with the Graduate Advisor and then move accordingly:

1. Graduate Advisor
2. Program Manager
3. Faculty Director
4. Graduate School Dean

In all cases, the program policy is to resolve student concerns at the lowest level possible, without escalation.



## Grievances

Programs follow the [Graduate School policy](#) for grievances. The first step in the Grievance Process and Procedure requires a student to first file a grievance through the program, and then file an appeal to the Graduate School if the issue is not resolved through the program-level process. The program-level grievance shall be initiated by submitting the [Graduate Student Grievance form](#) to the faculty director. The grievance must be reviewed by an ad-hoc faculty committee or steering committee before an appeal can be filed directly to the Graduate School. Additionally, the University of Colorado Boulder has a guide for [information](#) related to appeals, complaints, and grievances, including those for distance and online students.

Students located outside of Colorado must first seek resolution with the [University of Colorado Boulder by filing a complaint with the appropriate person or office](#). If the student bringing the complaint is not internal processes, the student Entity at the [Colorado Department of Higher Education](#).

The University of Colorado Boulder also provides access to a list of [all state contacts](#) for filing complaints should the person wish to pursue these venues.

Regardless of location, if students are unsatisfied with the resolution and all other avenues provided by the University of Colorado Boulder, they may contact the Colorado Department of Higher Education at (303) 441-3688 or (800) 368-8688.

## **Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation**

