

MATH 3191 – Applied Linear Algebra

Fall 2024 Section MATH 3191-E01

Department of Mathematical and Statistical Sciences, University of Colorado Denver

Instructor information

Instructor: Julien Langou, email: julien.langou@ucdenver.edu or through Canvas.

Office hours: By appointment. I will try to be as flexible as possible while trying to maximize the attendance at my office hour.

Course catalog description and requisites

MATH 3191 - Applied Linear Algebra. Topics include systems of equations, Gaussian elimination with partial pivoting, LU-decomposition of matrices, matrix algebra, determinants, vector spaces, linear transformations, eigen values and applications. Note: No co-credit with MATH 3195. Note: This course assumes that students have taken MATH 2411 or equivalent. Students who have a grade of B- or better in MATH 2411 pass this course at a much higher rate.

Course Goals

Linear Algebra is the mathematics of vectors and matrices. These are the objects used to represent and transform data, and make linear algebra one of the most useful mathematical subjects in practice.

In this course, students learn

1. to use vectors and matrices to represent data in practical applications;
2. to develop a geometric intuition of vectors and matrices, and data representation in general to understand the connections of different ways of representing data;
3. to transform data representations into one another;
4. to use some advanced methods to gain further insight into properties of data.

This is an upper division level mathematics class and some level of abstraction and proof writing and proof skills will be taught and evaluated. This class will cover “matrix computation”/“matrix methods”/“matrix algorithms” and, in addition, some more theoretical concepts. A previous “proof class” is not required for this class. This class can be viewed as a gentle introduction to proof and abstract mathematics. I will also demonstrate some programming using Python and Google Colab (<https://colab.research.google.com/>). No programming experience is needed. Similarly as proof, this class can be viewed as a gentle introduction to programming.

Course materials and procedures

Textbook. *Linear Algebra and its Applications*, 6th edition by David C. Lay, Judi J. McDonald, and Steven R. Lay, published by Pearson, April 21st 2020. The link to the textbook is <https://www.pearson.com/store/p/linear-algebra-and-its-applications/P100002823023>. We will need you to have MyLab. So please take the **MyLab** option. You can either take the 18-week plan for \$89.99 or the 24-month plan \$149.99. I personally think that 18 weeks is the way to go, I do not recommend the 24-month plan but you can do as you see fit. The \$89.99 plan will give you access to the eBook and to MyLab for 18 weeks. This is what you need. **To register, to go at:** <https://www.pearsonmylabandmastering.com/northamerica/students/get-registered/index.html>. **The course ID is langou94722 . To repeat, I recommend to take 18-week MyLab version for \$89.99.**

If, in addition, you would like a printed copy of your textbook to accompany these online resources, you can buy an unbound, three-hole-punched version of the textbook from the Pearson Learner store for \$69.99. <https://www.pearson.com/store/p/linear-algebra-and-its-applications/P100002823023/9780135851029>.

Please do not take the eText option for \$10.99 per month, since this does not give access to MyLab.

Procedure for Exam Proctoring. I will offer a few Zoom proctoring sessions, and you can pick the session that fit your schedule. In general, I found that Friday works well for exams. During the exam, I will welcome everyone to the Zoom session, camera must be on, I will send the exam to everyone present, and I expect the exam returned on Canvas before you

leave the Zoom session. There will be three exams and one final exam. I realize that this process of proctoring exams leaves a lots of loopholes for possible academic dishonesty. A large part of my teaching philosophy is based on trusting you for engaging in academic honesty during the semester including during exams. See also the later discussion on academic honesty.

More procedures. Assignments and additional course materials will be posted on Canvas. Announcements, including any revisions to this syllabus, will be announced and posted on Canvas.

Evaluation

The final course grade is determined by performance in several categories, weighted as given below. During the semester, grades will be posted on Canvas. Students should regularly check their recorded grades, and immediately bring any discrepancies or disputes to the attention of the instructor. Note that the grade calculation capabilities of Canvas are limited and may not be accurate. Use the grading scheme as described in this syllabus to compute your course grade.

Exams (59%). Exam 1, 2 and 3 will be worth 13% of the final score. Final exam will be worth 20% of the final score. Students must show all work for a problem to receive credit. Clarity is an important aspect of a completed assignment. Please see “Procedure for Exam proctoring”. All exams are without any assistance of calculating device, without notes, without textbooks, and without external help.

I believe in you learning, growing, and getting better as the semester goes along. For this reason, I have built in the schedule optional “retake” for all exams (including the final exam). After an exam, you will have the option of a retake. (There will be one retake available for each exam, and you can retake each of your exams.) See schedule. The retake exam will be designed to be of similar difficulty as the first exam. The best scores that you obtain whether it be at the initial exam or at the retake will be your score at the exam. Retakes are optional. And they cannot penalize you, they can only improve your grade.

Written Homework and MyLab (41 %) I will assign MyLab and Written Homework on a weekly basis. Written Homework will be posted on Canvas and will usually be due in one week after being posted, at the time specified on the assignment. Students must show all work for a problem to receive credit. Students should submit their solutions neatly presented (typed or handwritten) through Canvas. Most Written Homework will be about solving some “large” problems using Google Colab (<https://colab.research.google.com/>). Mylab Homework will be posted on Canvas and will usually be due in one week after being posted, at the time specified on the assignment. They will be available through the Pearson’s MyLab website.

You are encouraged to work together in groups outside of class, as well as consult other resources. However, your solutions must be your own. Any submitted solutions that I feel have been mostly copied from other sources, including classmates, textbooks, or the web, will receive no credit. See also the later discussion on academic honesty.

Final course grade scale. Final course letter grades will be assigned according to a student’s total course score (calculated as described above). Letter grades for specific scores are given in the following table.

≥ 93%	A	≥ 87%	B+	≥ 77%	C+	≥ 60%	D	< 60%	F
≥ 90%	A-	≥ 83%	B	≥ 70%	C				
		≥ 80%	B-						

Linear Algebra and Its Applications

Chapter 1	Linear Equations in Linear Algebra		
	1.1 Systems of Linear Equations	Core Topic 1	week 1
	1.2 Row Reduction and Echelon Forms	Core Topic 2	week 1
	1.3 Vector Equations	Core Topic 3	week 1
	1.4 The Matrix Equation $Ax=b$	Core Topic 4	week 2
	1.5 Solution Sets of Linear Systems	Core Topic 5	week 2
	1.6 Applications of Linear Systems	Application 1	week 2
	1.7 Linear Independence	Core Topic 6	week 3
	1.8 Introduction to Linear Transformations	Core Topic 7	week 3
	1.9 The Matrix of a Linear Transformation	Core Topic 8	week 3
	1.10 Linear Models in Business, Science, and Engineering	Application	
Chapter 2	Matrix Algebra		
	2.1 Matrix Operations	Core Topic 9	week 4
	2.2 The Inverse of a Matrix	Core Topic 10	week 4
	2.3 Characterizations of Invertible Matrices	Core Topic 11	week 4
	2.4 Partitioned Matrices	Supplementary Topic	
	2.5 Matrix Factorizations	Supplementary Topic	
	2.6 The Leontief Input–Output Model	Application	
	2.7 Applications to Computer Graphics	Application 2	week 5
	2.8 Subspaces of \mathbb{R}^n	Condensed Alternative	
	2.9 Dimension and Rank	Condensed Alternative	
Chapter 3	Determinants		
	3.1 Introduction to Determinants	Core Topic 12	week 5
	3.2 Properties of Determinants	Supplementary Topic 1	week 5
	3.3 Cramer’s Rule, Volume, and Linear Transformations	Application 3	week 6
Chapter 4	Vector Spaces		
	4.1 Vector Spaces and Subspaces	Core Topic 13	week 6
	4.2 Null Spaces, Column Spaces, and Linear Transformations	Core Topic 14	week 6
	4.3 Linearly Independent Sets; Bases	Core Topic 15	week 7
	4.4 Coordinate Systems	Core Topic 16	week 7
	4.5 The Dimension of a Vector Space	Core Topic 17	week 7
	4.6 Change of Basis	Supplementary Topic 2	week 8
	4.7 Digital Signal Processing	Application	
	4.8 Applications to Difference Equations	Application	
Chapter 5	Eigenvalues and Eigenvectors		
	5.1 Eigenvectors and Eigenvalues	Core Topic 18	week 8
	5.2 The Characteristic Equation	Core Topic 19	week 8
	5.3 Diagonalization	Core Topic 20	week 9
	5.4 Eigenvectors and Linear Transformations	Supplementary Topic	
	5.5 Complex Eigenvalues	Supplementary Topic 3	week 9
	5.6 Discrete Dynamical Systems	Application	
	5.7 Applications to Differential Equations	Application	
	5.8 Iterative Estimates for Eigenvalues	Supplementary Topic	
	5.9 Applications to Markov Chains	Application 4	week 9
Chapter 6	Orthogonality and Least Squares		
	6.1 Inner Product, Length, and Orthogonality	Core Topic 21	week 10
	6.2 Orthogonal Sets	Core Topic 22	week 10
	6.3 Orthogonal Projections	Core Topic 23	week 10
	6.4 The Gram–Schmidt Process	Supplementary Topic 4	week 11
	6.5 Least-Squares Problems	Supplementary Topic 5	week 11
	6.6 Machine Learning and Linear Models	Application 5	week 11
	6.7 Inner Product Spaces	Supplementary Topic 6	week 12
	6.8 Applications of Inner Product Spaces	Application	
Chapter 7	Symmetric Matrices and Quadratic Forms		
	7.1 Diagonalization of Symmetric Matrices	Core Topic 24	week 12
	7.2 Quadratic Forms	Core Topic 25	week 12
	7.3 Constrained Optimization	Supplementary Topic	
	7.4 The Singular Value Decomposition	Supplementary Topic 7	week 13
	7.5 Applications to Image Processing and Statistics	Application 6	week 13

week 1	Monday August 19th - Sunday August 25th	1.1 Systems of Linear Equations 1.2 Row Reduction and Echelon Forms 1.3 Vector Equations	Core Topic 1 Core Topic 2 Core Topic 3
week 2	Monday August 25th - Sunday September 1st	1.4 The Matrix Equation $Ax=b$ 1.5 Solution Sets of Linear Systems 1.6 Applications of Linear Systems	Core Topic 4 Core Topic 5 Application 1
week 3	Monday September 2nd - Sunday September 8th	1.7 Linear Independence 1.8 Introduction to Linear Transformations 1.9 The Matrix of a Linear Transformation	Core Topic 6 Core Topic 7 Core Topic 8
week 4	Monday September 9th - Sunday September 15th	2.1 Matrix Operations 2.2 The Inverse of a Matrix 2.3 Characterizations of Invertible Matrices	Core Topic 9 Core Topic 10 Core Topic 11
week 5	Monday September 16th - Sunday September 22nd	2.7 Applications to Computer Graphics 3.1 Introduction to Determinants 3.2 Properties of Determinants	Application 2 Core Topic 12 Supplementary Topic 1
week 6	Monday September 23rd - Sunday September 29th	3.3 Cramer's Rule, Volume, and Linear Transformations 4.1 Vector Spaces and Subspaces 4.2 Null Spaces, Column Spaces, and Linear Transformations	Application 3 Core Topic 13 Core Topic 14
week 7	Monday September 30th - Sunday October 6th	4.3 Linearly Independent Sets; Bases 4.4 Coordinate Systems 4.5 The Dimension of a Vector Space	Core Topic 15 Core Topic 16 Core Topic 17
week 8	Monday October 7th - Sunday October 13th	4.6 Change of Basis 5.1 Eigenvectors and Eigenvalues 5.2 The Characteristic Equation	Supplementary Topic 2 Core Topic 18 Core Topic 19
week 9	Monday October 14th - Sunday October 20th	5.3 Diagonalization 5.5 Complex Eigenvalues 5.9 Applications to Markov Chains	Core Topic 20 Supplementary Topic 3 Application 4
week 10	Monday October 21st - Sunday October 27th	6.1 Inner Product, Length, and Orthogonality 6.2 Orthogonal Sets 6.3 Orthogonal Projections	Core Topic 21 Core Topic 22 Core Topic 23
week 11	Monday October 28th - Sunday November 3rd	6.4 The Gram-Schmidt Process 6.5 Least-Squares Problems 6.6 Machine Learning and Linear Models	Supplementary Topic 4 Supplementary Topic 5 Application 5
week 12	Monday November 4th - Sunday November 10th	6.7 Inner Product Spaces 7.1 Diagonalization of Symmetric Matrices 7.2 Quadratic Forms	Supplementary Topic 6 Core Topic 24 Core Topic 25
week 13	Monday November 11th - Sunday November 17th	7.4 The Singular Value Decomposition 7.5 Applications to Image Processing and Statistics review / slack	Supplementary Topic 7 Application 6
spring break	Monday November 18th - Sunday November 24th	FALL BREAK FALL BREAK FALL BREAK	
week 14	Monday November 25th - Sunday December 1st	review / slack review / slack review / slack	
week 15	Monday December 2nd - Sunday December 8th	review / slack review / slack review / slack	
finals week	Monday December 9th - Sunday December 15th	FINALS WEEKS FINALS WEEKS FINALS WEEKS	

week 1	Monday August 19th - Sunday August 25th	
week 2	Monday August 25th - Sunday September 1st	MyLab 1 due on Wednesday August 27th Homework 1 due on Wednesday August 27th
week 3	Monday September 2nd - Sunday September 8th	MyLab 2 due on Wednesday September 4th Homework 2 due on Wednesday September 4th
week 4	Monday September 9th - Sunday September 15th	MyLab 3 due on Wednesday September 11th Homework 3 due on Wednesday September 11th
week 5	Monday September 16th - Sunday September 22nd	MyLab 4 due on Wednesday September 18th Homework 4 due on Wednesday September 18th Exam #1 on Friday September 20th
week 6	Monday September 23rd - Sunday September 29th	MyLab 5 due on Wednesday September 25th Homework 5 due on Wednesday September 25th
week 7	Monday September 30th - Sunday October 6th	MyLab 6 due on Wednesday October 2nd Homework 6 due on Wednesday October 2nd Possible ReTake Exam #1 on Friday October 4th
week 8	Monday October 7th - Sunday October 13th	MyLab 7 due on Wednesday October 9th Homework 7 due on Wednesday October 9th
week 9	Monday October 14th - Sunday October 20th	MyLab 8 due on Wednesday October 16th Homework 8 due on Wednesday October 16th Exam #2 on Friday October 18th
week 10	Monday October 21st - Sunday October 27th	MyLab 9 due on Wednesday October 23rd Homework 9 due on Wednesday October 23rd
week 11	Monday October 28th - Sunday November 3rd	MyLab 10 due on Wednesday October 30th Homework 10 due on Wednesday October 30th Possible ReTake Exam #2 on Friday November 1st
week 12	Monday November 4th - Sunday November 10th	MyLab 11 due on Wednesday November 6th Homework 11 due on Wednesday November 6th
week 13	Monday November 11th - Sunday November 17th	MyLab 12 due on Wednesday November 13th Homework 12 due on Wednesday November 13th Take Exam #3 on Friday April 30th
week 14	Monday November 18th - Sunday November 24th	MyLab 13 due on Wednesday November 20th Homework 13 due on Wednesday November 20th
fall break	Monday November 25th - Sunday December 1st	FALL BREAK FALL BREAK FALL BREAK
week 15	Monday December 2nd - Sunday December 8th	MyLab 14 due on Wednesday November 4th Homework 14 due on Wednesday December 4th Possible Retake Exam #3 on Friday December 6th
finals week	Monday December 9th - Sunday December 15th	Final Exam (open window: from Friday December 6th to Monday December 9th) Possible Retake Final Exam (open window: from Wednesday December 11th to Friday December 13th)

University, college, and department policies

Academic Calendar

For university deadlines and procedures (such as the last day to withdraw from a course), please see the Academic Calendar. <https://www.ucdenver.edu/student/calendars/academic/>

Academic Support

Instructor office hours or other appointments are the best way to get additional help. I'm happy to help with questions not answered during class, additional explanation, or homework assistance.

Other sources of support are

- The Math and Stat Support office is located in the Learning Commons Building Room 1225 and regularly offers CU Denver students free drop-in assistance. Hours of operation, zoom links for virtual options, and other forms of support for mathematics and statistics courses are available on the Math and Stat Support webpage.
<https://clas.ucdenver.edu/mathematical-and-statistical-sciences/math-and-stat-support>
- The Learning Resources Center (LRC) provides individual and group tutoring, Supplemental Instruction (SI), study skills workshops, and ESL support.
<https://www.ucdenver.edu/learning-resources-center>
- The College of Liberal Arts and Sciences has a summary of campus academic support and school/college advising offices.
<https://clas.ucdenver.edu/faculty-staff/content/clas-academic-policies-deadlines>

Recording of Class Meetings

Class meetings held on or streamed over a video conferencing platform (such as Zoom, Microsoft Teams, etc) may be recorded and posted for all members of the class. Student participation and interaction may be included in the recording. If you have any concerns about this, please contact the instructor.

Diversity Statement

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture, etc. I would like to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc). To help accomplish this:

- If you have a name and/or set of pronouns that differ from those that appear in your official records, please let me know!
- If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you. Remember that you can also submit anonymous feedback (which will lead to me making a general announcement to the class, if necessary to address your concerns). If you prefer to speak with someone outside of the course, the Office of Diversity, Equity and Inclusion, is an excellent resource.
- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, including by me, please talk to me about it. (Again, anonymous feedback is always an option).

Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious or other cultural events, please let me know so that we can make arrangements for you.

Health and Wellness

As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, traumas, increased anxiety, substance use, feeling down, difficulty concentrating, and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. If you or someone you know is struggling, you can find supportive campus and community resources at the Health Center at Auraria or the CU Denver Counseling Center. On weekends, holidays or after-hours you can contact the 24/7 Mental Health Crisis and Victim Assistance Line at 303-615-9911.

The University of Colorado Denver is committed the health and well-being of all students. We recognize that diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of such symptoms can be quite varied, and include experiences of trauma (such as sexual and relationship violence, stalking, discrimination, crimes, and accidents), responses to course work, family worries, loss, personal struggle, or crisis. If you or someone you know is struggling, you can find supportive campus and community resources at

<https://www.ucdenver.edu/counseling-center>

or by calling the CU Denver Counseling Center (303-315-7270) or the Health Center at Auraria (303-615-9999). On weekends, holidays or after-hours you can contact the 24/7 Mental Health Crisis and Victim Assistance Line at 303-615-9911.

Disability Accommodation and Access

The University of Colorado Denver is committed to ensuring the full participation of all students in its programs, including students with disabilities. If you have a disability or think you have a disability and need accommodations to succeed in this course, I encourage you to contact Disability Resources and Services (DRS) and/or speak with me as soon as you can. DRS is located in Student Commons Building Suite 2116, and can be reached at disabilityresources@ucdenver.edu and online at <https://www.ucdenver.edu/offices/disability-resources-and-services>. I am committed to providing equal access as required by federal law, and I am interested in developing strategies for your success in this course.

Nondiscrimination and Sexual Misconduct

The University of Colorado Denver is committed to maintaining a positive learning, working and living environment. University policy and Title IX prohibit discrimination on the basis of race, color, national origin, sex, age, disability, pregnancy, creed, religion, sexual orientation, veteran status, gender identity, gender expression, political philosophy or political affiliation in admission and access to, and treatment and employment in, its educational programs and activities. University policy prohibits sexual misconduct, including harassment, domestic and dating violence, sexual assault, stalking, or related retaliation. If you have experienced any sort of sexual misconduct or discrimination, please visit the Office of Equity web site at <https://www.ucdenver.edu/offices/equity> to understand the resources available to you or contact the Office of Equity/Title IX Coordinator at equity@ucdenver.edu.

Please note that I am a [Responsible Employee](#), which means that if I witness or receive information regarding possible prohibited protected characteristic discrimination or harassment, any form of sexual misconduct, and/or related retaliation, I am required to promptly report the information to the Office of Equity or their designee.

Religious Holiday Accommodation

Faculty in the University of Colorado system provide reasonable accommodations to students who must be absent from classes because of religious holidays. If you will miss class or graded assignments in order to observe religious holidays, you must contact me with all course conflicts by the end of the first week of classes.

Student Code of Conduct

As members of the University community, students are expected to uphold university standards, which include abiding by state civil and criminal laws and all University policies and standards of conduct. These standards are outlined in the student code of conduct, which can be found at <https://www.ucdenver.edu/student/wellness/student-conduct>

Academic Honesty

Students are expected to know, understand, and comply with the ethical standards of the university. A university's reputation is built on a standing tradition of excellence and scholastic integrity. As members of the University of Colorado Denver academic community, faculty and students accept the responsibility to maintain the highest standards of intellectual honesty and ethical conduct.

Academic dishonesty is defined as a student's use of unauthorized assistance with intent to deceive an instructor or other such person who may be assigned to evaluate the student's work in meeting course and degree requirements.

This course assumes your knowledge of the policies and [definitions](#). University policies allow the instructor to decide how to respond to an ethics violation, whether by lowering the assignment grade, lowering the course grade, and/or filing charges against the student with the campus Office of Student Conduct. For more information regarding the Office of Student Conduct policies and procedures, please refer to <https://www.ucdenver.edu/student/wellness/student-conduct/academic-integrity>. Violating the academic honor code can lead to expulsion from the University.

Examples of academic dishonesty include, but are not limited to, the following:

Plagiarism. Plagiarism is the use of another person's distinctive words or ideas without acknowledgment. Examples include:

1. Word-for-word copying of another person's ideas or words;
2. The mosaic (the interspersing of one's own words here and there while, in essence, copying another's work);
3. The paraphrase (the rewriting of another's work, yet still using their fundamental idea or theory);
4. Fabrication of references (inventing or counterfeiting sources);
5. Submission of another's work as one's own;
6. Neglecting quotation marks on material that is otherwise acknowledged.

Acknowledgment is not necessary when the material used is common knowledge.

Cheating. Cheating involves the possession, communication, or use of information, materials, notes, study aids or other devices not authorized by the instructor in an academic exercise, or communication with another person during such an exercise. Examples include:

1. Copying from another's paper or receiving unauthorized assistance from another during an academic exercise or in the submission of academic material;
2. Using a calculator when its use has been disallowed;
3. Collaborating with another student or students during an academic exercise without the consent of the instructor.

Note on use of Generative AI. Generative AI tools such as ChatGPT may not be used on exams, tests, or quizzes that do not permit the use of outside resources. The instructor will provide guidelines on whether such tools can be used for assignments and projects.

Fabrication and Falsification. Fabrication involves inventing or counterfeiting information, i.e., creating results not obtained in a study or laboratory experiment. Falsification, on the other hand, involves the deliberate alteration of results to suit one's needs in an experiment or other academic exercise.

Multiple Submissions. This is the submission of academic work for which academic credit has already been earned, when such submission is made without instructor authorization.

Misuse of Academic Materials. The misuse of academic materials includes, but is not limited to, the following:

1. Stealing or destroying library or reference materials or computer programs;
2. Stealing or destroying another student's notes or materials, or having such materials in one's possession without the owner's permission;
3. Receiving assistance in locating or using sources of information in an assignment when such assistance has been forbidden by the instructor;
4. Illegitimate possession, disposition, or use of examinations or answer keys to examinations;
5. Unauthorized alteration, forgery, or falsification;
6. Unauthorized sale or purchase of examinations, papers, or assignments.

Complicity in Academic Dishonesty. Complicity involves knowingly contributing to another's acts of academic dishonesty. Examples include:

1. Knowingly aiding another in any act of academic dishonesty;
2. Allowing another to copy from one's paper for an assignment or exam;
3. Distributing test questions or information about the materials to be tested before the scheduled exercise;
4. Taking an exam or test for someone else;
5. Signing another's name on attendance roster or on an academic exercise.

Incomplete Policy

When a student has special circumstances that make it impossible to complete course assignments, faculty members may choose to award an incomplete grade. All incomplete courses are assigned a grade of Incomplete (I). Incomplete grades are not awarded for poor academic performance or as a way of extending assignment deadlines. Faculty are not required to award an Incomplete.

To be eligible for an Incomplete grade, students MUST:

- Have participated in the class for a significant proportion of the term.
- Have successfully completed a significant proportion of the course assignments.
- Have special circumstances (verification may be required) that preclude the student from attending class and/or completing graded assignments.
- Make arrangements to complete missing assignments with the original instructor by a mutually agreed upon date but within one calendar year. Note that it is not the instructor's responsibility to teach the student missed material.
- Both the instructor and student should complete and sign a Course Completion Agreement found at <https://clas.ucdenver.edu/faculty-staff/content/incomplete-grade-policy>
- The instructor gives a copy of the signed Course Completion Agreement to the department.

Incompletes cannot:

- require a student to repeat the entire course,
- repeat or replace existing grades,
- allow the student an indeterminate period of time to complete a course, or
- allow the student to repeat the course with a different instructor.

Student Grievances

Students who have concerns about the course or instructor should first contact the instructor to discuss the issue. If the issue is not resolved, the student should next contact the Associate Chair of the Department of Mathematical and Statistical Sciences (currently Stephen Hartke <stephen.hartke@ucdenver.edu>). If not satisfied, the student should then appeal to the appropriate Associate Dean of the student's home school or college (for CLAS, this is the Associate Dean for Student Success). No step in this process should be skipped.

STUDENT SUPPORT

CARE Team is there for you
Call 303-352-3579 if you
or a classmate needs extra help
Submit a concern at
<http://www.ucdenver.edu/care>

Call 911 in case of emergency
Auraria Campus Police: 303-556-5000

CAREER COUNSELING at LYNXCONNECT

ucdenver.edu/careercenter - Tivoli 339
303-315-7315 - CareerCenter@ucdenver.edu

COUNSELING CENTER

ucdenver.edu/counselingcenter - Tivoli 454 (4th floor)
303-315-7270 (Emergency After-Hours: 303-615-9911)

DISABILITY RESOURCES & SERVICES

ucdenver.edu/offices/disability-resources-and-services
Student Commons 2116
303-315-3510 - disabilityresources@ucdenver.edu

OFFICE OF EQUITY

ucdenver.edu/equity - Lawrence Street Center 12th floor
303-315-2567 – equity@ucdenver.edu

PHOENIX CENTER AT AURARIA

24/7 Free and Confidential Helpline: 303-556-2255
Info on interpersonal violence, referrals, options, & next steps
www.thepca.org - Tivoli 227 - 303-315-7250 - info@thepca.org

FREE TUTORING

Contact these services for academic assistance throughout the semester

LEARNING RESOURCES CENTER

ucdenver.edu/lrc – Learning Commons Suite 1231
303-315-3531 - LRC@ucdenver.edu

MATH AND STAT SUPPORT (MaSS)

Learning Commons Room 1225
clas.ucdenver.edu/mathematical-and-statistical-sciences/math-and-stat-support

WRITING CENTER

writingcenter.ucdenver.edu - Learning Commons First Floor

UNDERGRADUATE ACADEMIC ADVISING

ucdenver.edu/undergradadvising

Graduate students: contact your graduate program directly for advising information

ARCHITECTURE AND PLANNING (CAP) ADVISING

CU Building 2000
303-315-1000 - cap@ucdenver.edu

ARTS AND MEDIA (CAM) ADVISING

Arts Building 177
303-315-7400 - camadvising@ucdenver.edu

BUSINESS SCHOOL ADVISING

15th and Lawrence Street, 4th floor
303-315-8110 - undergrad.advising@ucdenver.edu

CENTER FOR UNDERGRADUATE EXPLORATION & ADVISING (CUE&A)

Student Commons 1113
303-315-1940 - cuea@ucdenver.edu

EDUCATION & HUMAN DEVELOPMENT (SEHD) ADVISING

Lawrence Street Center 701
303-315-6300 - education@ucdenver.edu

ENGINEERING, DESIGN & COMPUTING (CEDC) ADVISING

North Classroom 3034
303-315-7170 - engineering@ucdenver.edu

LIBERAL ARTS AND SCIENCES (CLAS) ADVISING

North Classroom 1030
303-315-7100 – clas_advising@ucdenver.edu

PUBLIC AFFAIRS (SPA) ADVISING

Lawrence Street Center 525
303-315-2228 – spa.advising@ucdenver.edu

Plan Ahead! Review Important Dates & Deadlines
at <http://ucdenver.edu/academiccalendar>

[UCD Access \(Student Portal\)](#)[Registrar Forms](#)[Registration Information](#)**All deadlines are 11:59 PM MT unless otherwise indicated.**

Main Session	Date	Important Notes
First day to apply for Fall Graduation via UCDAccess	April 1, 2024	
Registration begins for Fall Semester via UCDAccess	April 1-16, 2024	Check UCDAccess for your specific registration date and time assignment. For best course selection, register as soon as possible after your registration time assignment.
Open enrollment begins for Fall Semester via UCDAccess	April 17, 2024	
First day of Fall semester classes	August 19, 2024	
Last day to waitlist Fall classes using UCDAccess	August 25, 2024	
Last day to drop a Fall class without a \$100 drop charge	August 26, 2024	All waitlists will be eliminated today.
First day instructor approval may be required to add some Fall classes	August 26, 2024	If unable to enroll in UCDAccess because "Instructor Consent is Required", obtain instructor approval on a Schedule Adjustment Form.
Labor Day Holiday	September 2, 2024	No classes. Campus closed.
Census Day	September 4, 2024	Deadline time is 5:00 PM MT.
Last Day to add Fall classes in UCDAccess	September 4, 2024	Deadline time is 5:00 PM MT.
Last day to add Fall classes with instructor consent on the Schedule Adjustment form	September 4, 2024	If unable to enroll in UCDAccess because "Instructor Consent is Required", obtain instructor approval on a Schedule Adjustment Form. Deadline time is 5:00 PM MT.

Full tuition will be charged for additional Fall classes added after this date	September 4, 2024	College Opportunity Fund will not apply nor will hours be deducted from eligible lifetime hours after this date. Deadline time is 5:00 PM MT.
Last day to drop Fall classes with a financial adjustment	September 4, 2024	Deadline time is 5:00 PM MT.
Fall classes dropped after this date will appear on your transcript with a grade of 'W'	September 4, 2024	Deadline time is 5:00 PM MT.
Last day to request or cancel Grade Forgiveness for Fall Semester	September 4, 2024	Refer to the Grade Forgiveness form for restrictions. Deadline time is 5:00 PM MT.
Last day to apply for Fall graduation via UCDAccess	September 4, 2024	Deadline time is 5:00 PM MT. After this, contact your advisor.
Last day to request No Credit or Pass/Fail grade for a Fall class	October 27, 2024	Graduate degree students can exercise the P+/P/F option for undergraduate courses only. Graduate students should consult their school or college regarding the P+/P/F option. A grade of P+/P/S will not be acceptable for graduate credit to satisfy any graduate education requirement.
Last day to withdraw from a Fall class via UCDAccess	October 27, 2024	
First day to withdraw from a Fall class with a Late Withdraw Petition form	October 28, 2024	
Registration begins for Spring Semester via UCDAccess	Nov. 1, 2024 - Nov. 18, 2024	Check UCDAccess for your specific registration date and time assignment. For best course selection, register as soon as possible after your registration time assignment.
Open enrollment begins for Spring Semester via UCDAccess	November 19, 2024	
Fall Break	November 25 - Dec 1, 2024	No classes. Campus open.
Thanksgiving Day	November 28, 2024	No classes. Campus closed.
Last day to withdraw from a Fall class with a Late Withdrawal Petition form	December 4, 2024	
Finals Week	December 9 - 14, 2024	
End of Fall semester - Commencement	December 14, 2024	
Final Fall Semester grades available on UCDAccess and transcripts (tentative)	December 19, 2024	
Winter Break	Dec. 25, 2024 - Jan. 1, 2025	No classes. Campus closed.

Fall degrees posted on UCDAccess and transcripts (tentative)	January 10, 2025	This is the date your degree will be recorded on your transcript; diplomas begin mailing on February 1st.
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Important Information

Refer to the Residency website for important deadlines pertaining to In-State Tuition Rate qualification.

Refer to the College Opportunity Fund (COF) website for important deadlines pertaining to the COF stipend for eligible undergraduate students paying in-state tuition.

Additional Billing/Financial Information: Students are responsible for complying with tuition/fees deadlines. All registered students must access their student account and billing information through UCDAccess. You will also receive an electronic bill to your university email account.

Intensive and Module classes require the same amount of work and number of classroom hours as full-term classes. Intensive classes are less than five weeks. Module classes last five or more weeks, but less than full term. Module/intensive classes may be added up until the first day of the class. After the first day of class, late starting module or intensive classes may be added with the instructor's signature approval. Instructor approval is not required to drop the class within the first 15% of class meetings.
