

MAS 3114
FALL 2019

SYLLABUS

COURSE TITLE: Computational Linear Algebra

CATALOG DESCRIPTION: Linear equations, matrices, and determinants; vector spaces and linear transformations; inner products and eigenvalues. This course emphasizes computational aspects of Linear Algebra.

COURSE CONTENT: MAS 3114 is designed to serve science, computer science, quantitative science, engineering majors, and mathematics minors. Mathematics majors are required to take MAS 4105.

MAS 3114 is a 3-credit course on linear algebra whose topics are of a computational nature. The topics include linear equations, matrices, determinants, vectors, vector spaces, linear transformations, inner products, eigenvalues, and applications.

Computer projects are assigned (5 per semester). We require the students to learn MATLAB, a programming environment, for the projects. Proofs are not stressed as much as in MAS 4105 Linear Algebra 1.

PREREQUISITES: familiarity with a programming language and a grade of a C or better in MAC 2312.

COURSE GOALS: By the end of the term, we expect the students to be able to analyze and solve linear systems and apply their knowledge to the real world problems.

INSTRUCTOR: **Dr. Larissa Williamson**

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TEACHING ASSISTANT: **Mahdi Kouretchian**

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Course Calendar

MAS 3114 – Section 5065

Fall 2019	Monday	Tue	Wed	Thursday	Friday
August	19	20	21 M1	22	23 M2
September	26 M3	27	28 M4	29 HW:M1-M3 due Skill Survey Quiz	30 M5
	2 Labor Day	3	4 M6	5 HW:M4-M5 due	6 Review1
	9 HW: M6 due Exam1:M1-6	10	11 M7	12	13 M8 Project 0
	16 M9	17	18 M10	19 HW:M7-M9 due	20 M11 Project 1
	23 M12	24	25 M13	26 HW:M10-M12 due	27 M14
October	30 Review2	1	2 Exam2:M7-14	3 HW:M13-M14	4 Homecoming
	7 M15	8	9 M16	10 HW: M15	11 M17 Project2
	14 M18	15	16 M19	17 HW:M16-M18	18 M20
	21 M21	22	23 Review3	24 HW:M19-M21	25 Exam3:M15-21
November	28 M22	29	30 M23	31 HW: M22	1 M24 Project 3
	4 M25	5	6 M26	7 HW: M23-M25	8 Review 4
	11 Veterans Day	12	13 Exam4:M22-26	14 HW:M26 due	15 M27
	18 M28 MakeUp Exam	19	20 M29	21 HW: M27-M28 due	22 M30 Project4
December	25 M31	26 HW: M29-30	27 Holiday	28 Thanks	29 giving
	2 M32	3 HW: M31-32	4 Quiz:M27-32 Review 5	5 Reading Day	6 Reading Day

Delivering Content

TEXTBOOK & ACCESS CODE:

1) We use the following textbook in this course:

Linear Algebra and Its Applications, 5th edition,
by David C. Lay, Steven R. Lay, Judi J. McDonald*

2) Access code to **MyLab & Mastering** is required in the course.

The access code can be obtained through UF All Access by authorizing charges to your student financials account and is provided at a discounted price**

If you do not wish to authorize charges to your student financials account, you may purchase an access code at the Campus bookstore instead

(<https://www.bkstr.com/floridastore>), which will be more expensive than opting in.

* Registration with MyLab gives you an access to an electronic version of the textbook. If you wish to purchase a print text, you may also purchase those at the bookstore at a discounted price.

****Please see Course Materials and Registration Instructions on Canvas for complete information on obtaining an access code to MyLab by authorizing charges to your student financials account through UF All Access program.**

LECTURE NOTES: Lecture note shells make the note taking easier and are required in the course. They can be printed from Canvas at <https://lss.at.ufl.edu/> (under **Lecture Notes**) or purchased at Target Copy (1412 W University Ave, Gainesville, FL 32603).

TEXTBOOK READINGS: Reading the textbook is a part of learning process. The students are strongly recommended to read the corresponding sections of the textbook after (or before) attending a lecture and BEFORE doing the homework. The pages of the textbook that match the content of a lecture are listed in each corresponding Module on Canvas.

Course Structure

The course management system is E-learning (Canvas): <https://lss.at.ufl.edu/>

The course is divided into **5 units**:

<u>Unit 1</u>	M01 – M06	Linear Systems
<u>Unit 2</u>	M07 – M14	Matrices & Determinants
<u>Unit 3</u>	M15 – M21	Vector Spaces & Bases
<u>Unit 4</u>	M22 – M26	Eigenvalues & Eigenvectors
<u>Unit 5</u>	M27 – M32	Orthogonal Sets & Linear Models

MODULES & DUE DATES: It is advisable to begin working on a module on the date indicated in the Calendar so that you will stay on track and avoid having too many Modules to complete by the Due Date. Each Module becomes available on MyLab & Mastering at least 10 days prior to the due date and will be closed on the Due Date at 11:59 pm ET. The assignment, which is required to be completed for each Module, is on-line Homework.

REVIEW: The dates indicated in the calendar as “Review#” are the due dates for Review Modules. A Review Module is the last one in each Unit. Working on the Review modules will help you to prepare for exams and the quiz (no homework is assigned for a Review module).

TEXTBOOK HOMEWORK: Textbook homework problems are assigned after each lecture. **They will not be graded** but should be considered as an additional tool for mastering the material and preparing for the Exams. A list of recommended Textbook Homework problems is located in each corresponding Module on Canvas.

Assessments

ON-LINE HOMEWORK: Each on-line **Homework** assignment (HW) is a set of problems assigned in MyLab and numbered according to the module covered. A HW assignment is due at 11:59 pm on the due date indicated in the Calendar, on Canvas, and on MyLab. HW **will be closed after the due date**. A credit for a HW will be given according to the percent value of the correct work completed. There will be total of 32 assignments offered and the **2 lowest scores will be dropped**.

LECTURE PARTICIPATION: Starting on the second week of classes, lecture participation quizzes will be given in the lecture hall during each lecture. The students are required to register with **MyLab & Mastering** in order to use Pearson’s Learning Catalytics system and get points for participation. The students will access the system from Canvas by clicking on the link **MyLab & Mastering** on the left-hand panel. The active session will be shown on MyLab Course Homepage. The students simply click on the active session’s number to join. Learning Catalytics allows the students to use their smartphone, tablet, or laptop to respond to the questions in class, and their responses will be graded and recorded in the gradebook. A total of 33 sessions will be graded. There will be 2 questions per session. Each question is worth 1 point and the grade will be assigned as 75% for participation and 25% for correctness. A student will get a full credit 1.75 by attempting two questions and answering one correctly. If a student answers both questions correctly, he/she receives 2 points for the session, which includes 0.25 bonus. **The three lowest scores for the lecture participation will be dropped at the end of the term** to compensate for occasional absences, device failures, etc.

EXAMS & QUIZ: There will be four Unit Exams, an optional MakeUp Exam, and the Quiz offered during the term. Each Unit Exam covers the corresponding Unit, the Quiz covers Unit 5, and the optional MakeUp is a re-take for one of the Unit Exams. The Unit exams for this course will be given in **lecture hall** during the **regular class time** on the dates indicated in the Calendar. The date for the MakeUp is set in the Calendar and the time/location will be announced later. The Quiz has to be completed within MyLab and Mastering on the date indicated in the Calendar. The Quiz is mandatory, but does not require proctoring. Each exam contains 12 five-point multiple-choice questions and 5 one-point true/false bonus questions – the score will count out of 60 points. A 60-minute Quiz in MyLab contains 12 multiple-choice questions and will be graded out of 12 points by MyLab software – the review will become available after the due date and can be accessed from MyLab Gradebook. It may be necessary to miss a Unit Exam during the term or you might not be satisfied with one of your grades earned on the Unit Exams. For these reasons, an OPTIONAL MakeUp Exam will be offered - no

documentation is needed to take it. The grade on the MakeUp will replace your grade on the corresponding Unit Exam only if you do better on the MakeUp than on the regular Exam. A MakeUp is in the same format as the corresponding unit exam and counted out of 60 points.

PROJECTS: 5 computer projects will be assigned during the semester. All projects have to be completed by using MATLAB software. Project 0 is an individual project and will be counted out of 10 points. Projects 1–4 are group projects and each is worth 30 points. The projects have to be submitted on Canvas through Assignments link before the due dates indicated in the Calendar. Please visit the link “MATLAB Projects” on Canvas homepage for more information.

Makeup Policy

MAKEUP POLICY ON ON-LINE HOMEWORK: If you missed the due date on homework on a legitimate and documented reason (which include: being sick, being away on a UF business, a family emergency), you have to present a valid documentation to Dr. Williamson prior to the due date or right after you came back to school if you were sick. Late excuse documentation will not be accepted. **No extensions on HW will be given after the due date without an appropriate documentation.**

MAKEUP POLICY ON EXAMS: **If you are missing a Unit Exam due to legitimate documented circumstances** (which include: being sick, being away on a UF business, a family emergency), you have an option to take the MakeUp Exam. However, if you wish to make it up earlier and save the MakeUp for another test, you will need to contact **Dr. Williamson** (lwill@ufl.edu) and provide the documentation at least a week prior to the test or immediately afterwards if you were sick. Important: an early make-up exam has to be scheduled within one week time frame of presenting the documentation; if an early make-up has not been scheduled in a timing manner, the student will take the regular MakeUp. No make-up will be given on the MakeUp Exam. No make-ups will be given at the end of the term. Late excuse documentation will not be accepted. Missing the Quiz without appropriate documentation and making it up later will result in a deduction of points at the Instructor's discretion.

IMPORTANT NOTE: Homework, exams, and projects will not be reviewed, offered, and/or accepted for grading at the end of the term. We will not accept any late excuse documentation. You can discuss an Exam, homework, lecture participation quiz, or Project within one week and the Quiz within one day with your instructor if there is a grading error or any other problem. The “Late submission” policy on Projects is posted on each individual Project page on Canvas.

Grades

COURSE GRADE: The course grade is assigned based on the student's performance on the following weighted categories:

30	Lecture Participation	@	52.5 points	9 %
30	On-line homework	@	90 points	16 %
5	Projects	@	130 points	23 %
1	Quiz	@	60 points	10 %
4	Exams	@	<u>240 points</u>	<u>42 %</u>
Total:			572.5 points	100 %

The course grade is the grade satisfying the conditions below and **will be adhered** to:

	Minimum %		Minimum %
A	90 %	C-	62 %
A-	86 %	D+	58 %
B+	82 %	D	54 %
B	78 %	D-	50 %
B-	74 %	E	0 %
C+	70 %		
C	66 %		

Note: We have 0.5% round up margin towards a higher letter grade.

GRADE POSTING: All grades will be posted in a timing manner on E-Learning (Canvas) at <http://lss.at.ufl.edu> . You are advised to check regularly whether your grades are handled and recorded properly. You should immediately report any problem with your grade to the Instructor.

Miscellaneous

CALCULATOR POLICY: Calculators may be useful for some homework problems but are not required in the course and are not allowed on the exams.

DRC ACCOMODATIONS: If you feel that you need special accommodations that would help you to facilitate your learning and improve the outcomes, you should register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing documentation. Once registered, students will receive an accommodation letter, which they need to present to Dr. Williamson. Students with disabilities should initialize this process as soon as possible to receive accommodations early in the semester in order to have a better chance for success.

HELP: Please visit Resources & Help link on the Canvas Homepage for the information.

Additional Information:

Grades: Grading will be in accord with the UF policy stated at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Honor Code: “UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The [Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.”

Class Attendance: “Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.”

Accommodations for Students with Disabilities: “Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.”

Online Evaluations: “Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.”

Contact information for the Counseling and Wellness Center: <https://counseling.ufl.edu/> 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.