

MAS 3114 (Web)
SPRING 2020

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 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. The course is delivered entirely online.

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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E-Learning: <https://elearning.ufl.edu/>

Course Calendar

MAS 3114 – Web

Spring 2020	Monday	Tue	Wed	Thursday	Friday
January	6 M1	7	8 M2	9	10 M3
	13 M4	14	15 M5	16 HW&LC M1-M3 Skill Survey Quiz	17 M6
	20 Holiday	21	22 Review1	23 HW&LC M4-M6 LC Review1 due	24 M7 Project 0 due
	27 M8	28	29 M9	30 HW&LC M7-M8	31 M10 Project 1 due
February	3 M11	4	5 M12	6 HW&LC M9-M11	7 M13
	10 M14	11	12 Review2	13 HW&LC M12-14 LC Review2 due	14 Exam1:M1-M14
	17 M15	18	19 M16	20 HW&LC M15	21 M17 Project 2 due
	24 M18	25	26 M19	27 HW&LC M16-18	28 M20
S P R I N G B R E A K: February 29 – March 8					
March	9 M21	10	11 Review 3	12 HW&LC M19-21 LC Review3 due	13 M22
	16 M23	17	18 M24	19 HW&LC M22-23	20 M25 Project 3 due
	23 M26	24	25 Review 4	26 HW&LC M24-26 LC Review4 due	27 Exam2:M15-26
April	30 M27	31	1 M28	2 HW&LC M27	3 M29
	6 M30	7	8 M31	9 HW&LC M28-30	10 Project4 due
	13 M32	14	15 Review 5	16 HW&LC M31-32 LC Review5 due	17 Quiz:M27-32
	20 MakeUp Exam (optional)	21	22	23 Reading Day	24 Reading Day

Delivering Content

TEXTBOOK & ACCESS CODE: 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*

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

An 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 E-Learning (Canvas) for complete information on obtaining an access code to MyLab by authorizing charges to your student financial 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 E-Learning (under **Lecture Notes**) or purchased at Target Copy (1412 W University Ave, Gainesville, FL 32603) when the semester begins.

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) viewing Part I or Part II of a lecture and before taking the quiz in Learning Catalytics or doing the homework. Pages of the textbook that match the content of a lecture are listed in the corresponding Module on Canvas.

Course Structure

The course is delivered on E-Learning (Canvas): <https://elearning.ufl.edu/>

It 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: The course has total of 32 Modules. It is advisable to complete 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 in 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 assignments required to be completed for each Module include on-line Homework and Learning Catalytics (LC) quiz (please read the section “Lecture Participation” in the current syllabus).

REVIEW MODULES: The dates indicated in the calendar as “LC Review# due” 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 the exams and Quiz. The assignment required to be completed for each Review Module is a **Learning Catalytics Quiz** (there is no homework 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. 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. The HW assignment will give you necessary practice for mastering the material delivered in lecture. A homework assignment is due at 11:59 pm on the due date indicated on the course Calendar, on Canvas, and on MyLab and Mastering. The 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 a total of 32 assignments offered, and the **2 lowest scores will be dropped** at the end of the term.

LECTURE PARTICIPATION QUIZZES: Viewing lectures is an important part of the learning process and required in the course. Your Lecture Participation will be monitored by Pearson’s Learning Catalytics (LC) software that can be accessed from MyLab & Mastering after you register with the site. Your responses will be graded and recorded in the gradebook. A total of 37 sessions will be offered. There are 2 questions per session. Each question is in the “many choice” format and worth 1 point; the grade will be assigned as 75% for participation and 25% for correctness. Each session will be counted out of 1.75 points. Thus, a student can earn 0.25 point bonus for answering both questions correctly. **The 5 lowest scores on the Lecture Participation will be dropped at the end of the term.**

Important: Make sure that you will join the correct session on Learning Catalytics (LC). If, when accessing the site it takes you to a “wrong” session, click on the small link on the bottom of the page that says “Join another session”. It will bring up the list of all running sessions and you can choose the “correct” session to join. More information on Learning Catalytics is located on Canvas page “Course Tools and Technology” under “Course Materials & Registration Instructions”.

EXAMS & QUIZ: There will be two Exams, one Quiz, and an optional MakeUp Exam offered in MyLab & Mastering during the term. Exam 1 covers Units 1-2, Exam 2 covers Units 3-4, the mandatory Quiz covers Unit 5, and an optional MakeUp is either for Exam 1 **OR** for Exam 2. All exams and the Quiz have to be taken on the dates indicated in the Calendar. The exams in this course are proctored through the ProctorU. You can schedule your session on the ProctorU site for any time between 12 am and 9 pm on the day of the exam. Each exam contains 26 multiple-choice questions, which includes 2 bonus questions. The student will have 100 minutes to complete each exam and is only permitted access to pencils, an eraser, and scratch paper while the exam is in progress. The exams will be graded by MyLab software upon submission, and the

grade on Canvas will be counted out of 24 points. The 60-minute Quiz contains 12 multiple-choice questions and will be graded out of 12 points. The Quiz is mandatory but it does not require proctoring. Review of an exam or the Quiz will become available after the due date and can be accessed from MyLab Gradebook.

MAKE UP EXAMS 1&2: It may be necessary to miss Exam 1 or Exam 2 during the term or you might not be satisfied with one of your grades earned on the midterm Exams. For these reasons, an OPTIONAL MakeUp Exam will be given on the date indicated on the Calendar – no documentation is needed to take it. The grade on a MakeUp will replace your grade on the corresponding midterm Exam only if you do better on the MakeUp than on the regular Exam. The format of a MakeUp is the same as the format of the corresponding midterm exam. See more information relating to the Exams, Quiz, and ProctorU on Canvas under the link “Exam Information”.

Important: No calculators are allowed on the Exams! While taking your exam with the ProctorU, you cannot use any notes or open ANY other program or file on your computer except the ones that are required. If you open a program or a file such as MATLAB, Calculator, MyMathLab homework, or Lecture Notes, the ProctorU will send an Incident Report to the Instructor.

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 – each is worth 30 points – **and the grade will be assigned to the whole group**. The projects have to be submitted on Canvas through the Assignments before the due dates indicated on the Calendar. For more information please visit the link “MATLAB Projects” on Canvas and read the instructions for each Project located under Assignments, Project#.

Makeup Policy

MAKEUP POLICY ON ON-LINE HOMEWORK: If you missed the due date on a homework assignment on a legitimate and documented reason (which include: being sick, being away on the UF business, family emergency), you have to present 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 AND QUIZ: **If you are missing a Unit Exam due to legitimate documented circumstances** (which include: being sick, being away on the UF business, family emergency), you have an option of taking the MakeUp Exam. However, if you wish to make it up earlier in the semester 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; otherwise, the student will take the regular MakeUp. Late excuse documentation will not be accepted. Missing the Quiz without an appropriate documentation and making it up at a later date will result in a deduction of points at the instructor’s discretion.

IMPORTANT NOTE: Homework, exams, quizzes, 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, LC 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’ performance on the following weighted categories:

32	Lecture Participation	@	56 points	10 %
30	On-line homework	@	90 points	15 %
5	Projects	@	130 points	23 %
1	Quiz	@	60 points	10 %
2	Exams	@	<u>240 points</u>	<u>42 %</u>
Total:			576 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 <https://elearning.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.

HELP: Please visit Resources & Help link on the Canvas Homepage for the 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 who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.”

Online Evaluations: “Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-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.