MAS 3114 (Web)
FALL 2017

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.

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E-learning (Canvas): https://lss.at.ufl.edu/

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

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

Course Calendar

MAS 3114 – Web

Fall 2017	Monday	Tue	Wed	Thursday	Friday
August	21 M1	22	23 M2	24 Skill Survey Quiz	25 M3
September	28 M4	29	30 M5	31 Modules1-4 due	1 M6
	4 Labor Day	5	6 Review1	7 Modules5-6 due Review1 LC due	8 **Project 0 due** M7
	11 M8	12	13 M9	14 Modules7-8 due	15 **Project 1 due** M10
	18 M11	19	20 M12	21 Modules9-11 due	22 M13
	25 M14	26	27 Review2	28 Modules12-14 due Review2 LC due	29 **Exam1:M1-14**
October	2 M15	3	4 M16	5 Module15 due	6 **Project2 due** M17
	9 M18	10	11 M19	12 Module16-18 due	13 Homecoming
	16 M20	17	18 M21	19 Modules19-20 due	20 Review 3
	23 M22	24	25 M23	26 Modules21-22 due Review3 LC due	27 **Project3 due** M24
November	30 M25	31	1 M26	2 Modules23-25 due	3 Review 4
	6 **Exam2: M15-26**	7	8 M27	9 Module 26 due Review4 LC due	10 Veterans Day
	13 M28	14	15 M29	16 Module27-28 due	17 M30
	20 M31	21	22 **Thanks**	23 **giving**	24 **Holiday**
December	27 **Project4 due** M32	28	29 Review 5	30 Modules29-32 due Review5 LC due	1 **Quiz:M27-32**
	4 Review	5	6 **Final Exam: M1-M32**	7 No Class	8 No Class

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**
You must authorize charges within 2 weeks after the beginning of the term**. If you do not wish to authorize charges to your student financials account, you may purchase an access code at the Campus bookstore instead.**

* 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 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 Canvas at https://lss.at.ufl.edu/ (under **Lecture Notes**) or purchased at Target Copy (1412 W University Ave, Gainesville, FL 32603).

MODULES & DUE DATES: 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 at least 2 weeks prior to the due date and will be closed on the Due Date at 11:59 pm ET. The assignments, which are required to be completed for each Module, include On-line Homework and Learning Catalytics quizzes.

REVIEW MODULES: The dates indicated in the calendar as "Review# LC due" are the due dates for Review Modules. The assignment that is required to be completed for each Review Module is the **Learning Catalytics quiz**.

EXAMS & QUIZ: There will be two Exams, one Quiz, and an optional Final Exam offered during the term. Exam 1 covers Units 1-2, Exam 2 covers Units 3-4, the mandatory Quiz covers Unit 5, and the optional Final is cumulative – it covers Units 1-5. All exams in this course must be proctored through ProctorU. Please see complete information about the Exams and ProctorU on Canvas under the link Exam Information. The Quiz is mandatory but it does not require proctoring. All exams and quiz have to be taken on the day indicated in the Calendar. All exams are multiple-choice and will be graded by the software upon submission on a scale from 0 to 120. The Quiz is also multiple-choice and graded on a scale from 0 to 60 points. It may be necessary to miss an 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 FINAL EXAM will be given on the last day of classes. The best 2 out of 3 exam scores will count.

IMPORTANT: <u>No calculators</u> are allowed on the Exams!
While taking exam with the ProctorU, you cannot open ANY other program or file on your computer except the ones that are required. If you open a program or file such as MATLAB, Calculator, MyMathLab homework, or Lecture Notes, the website/file will be blocked and your exam will be compromised by the MyMathLab software.

MAKEUP POLICY ON EXAMS: **If you are missing a Unit Exam due to <u>legitimate documented circumstances</u>, you have an option either to take the Final Exam as a MakeUp or, if you wish to make it up before the last days of classes and save the Final for another test, you can schedule a makeup earlier:** please contact **Dr. Williamson** (lwill@ufl.edu) and provide the documentation at least <u>a week prior to the test</u> or <u>immediately</u> afterwards if you were sick. <u>Late excuse documentation will not be accepted.</u> No makeups will be given at the end of the term. Missing the Quiz or Final exam without appropriate documentation and taking a makeup will result in deduction of points at the instructor's discretion.

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.

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 viewing Part I or Part II of lecture and BEFORE taking the quiz in Learning Catalytics. The pages of the textbook that match the content of a lecture are located in each corresponding Module on Canvas.

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 and on MyLab Assignments page and **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**. A maximum of 90 points can be earned on HW.

MAKEUP POLICY ON ON-LINE HOMEWORK**:** If you missed the due date on homework on a legitimate and documented reason, you have to present a valid documentation to Dr. Williamson prior to the due date or right afterwards if you were sick. Late documentation will not be accepted. **No extensions on HW will be given after the due date without an appropriate documentation.**

PROJECTS: 5 computer projects will be assigned during the semester and submitted in Canvas before the due dates indicated in the Calendar. All projects are to be completed by using MATLAB software. Please visit the link "MATLAB Projects" on the Canvas homepage for more information. Project 0 is worth 10 points and each of the Projects 1 – 4 is worth 30 points. Thus, up to 130 points can be earned on the Projects. **Please notice: the grade for Project 4 may not be available before the Final Exam due to the grading time required.**

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 have to present to your Instructor an appropriate documentation **before you miss an Exam or right after you come back to school if you were sick** to be eligible for a makeup. You can discuss a Unit Exam, project, or homework within <u>one week</u> and the Final exam – within 2 days with your instructor if there is a grading error or any other problem. Late submission policy on Projects is posted on each individual Project page on Canvas.

LECTURE PARTICIPATION: Your Lecture Participation will be monitored by Pearson's Learning Catalytics software that can be accessed from MyLab & Mastering after you register with the site. Please see the complete information on registration and access to Learning Catalytics on the Canvas page "Course Tools and Technology" under "Course Materials & Registration Instructions". 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 worth 1 point and the grade will be assigned as 75% for participation and 25% for correctness. Each session will be counted out of 2 points. **The two lowest scores for Lecture participation will be dropped at the end of the term**. The total score will count out of 70 points.

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

SPECIAL ACCOMODATIONS: <u>Students with learning disabilities</u> should request accommodations according to the UF policy. Please check on the current status with DRC.

COURSE GRADE: The course grade is based on 590 points accumulated as follows:

35	Lecture Participation	@	70 points	11.86 %
30	On-line homework	@	90 points	15.25 %
5	Projects	@	130 points	22.03 %
1	Quiz	@	60 points	10.17 %
2	Exams	@	<u>240 points</u>	<u>40.69 %</u>
		Total:	590 points	100 %

The course grade is the grade satisfying the conditions below and **will be strictly 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 %		

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 your Instructor.

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