

MAS 3114 Computational Linear Algebra

Course Syllabus

Contact Information

Instructor

Dr. Shu-Jen Huang

Use the Canvas mail tool for questions about your grade or other personal issues. Use discussion boards for questions about course content. Expect a response within 1 business day.

Course Information

MAS 3114 is a 3-credit course on linear algebra whose topics are computational. The topics include linear equations, matrices, determinants, vector spaces, linear transformations, inner products, and eigenvalues. This course emphasizes computational aspects of Linear Algebra. MAS 3114 is designed to serve science, computer science, quantitative science, engineering majors, and mathematics minors. Mathematics majors are required to take MAS 4105, Linear Algebra 1.

Credit Hours: 3

Course Content

MAS3114 covers the following three units.

Unit 1: Linear Systems & Matrices

Unit 2: Determinants & Vector Spaces

Unit 3: Eigenvectors & Orthogonal Sets

Learning Objectives/Outcomes

Upon successful completion of the course, students will:

- Solve linear systems of equations explicitly or numerically.
- Demonstrate understanding of linear transformations and their importance to applied science.

- Perform basic matrix calculations and compute determinants of matrices.
- Explain basic linear algebra concepts including vector space, subspace, span, linear independence, basis, and dimension.
- Determine eigenvalues and eigenvectors of a matrix and use them to solve systems of linear dynamical systems.
- Diagonalize a matrix when applicable.
- Demonstrate understanding of inner products and orthogonality.
- Determine least-squares solutions of linear systems.

Course Requirements

Required Textbook

Lay, D. C., Lay, S. R., & McDonald, J. (6th ed). *Linear algebra and its applications*.

Prerequisites

MAC2312 with a minimum grade of C and experience with a scientific programming language.

Minimum Technology Requirements

The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to their degree program. Most computers are capable of meeting the following general requirements. A student's computer configuration should include the following:

- External webcam (or phone App for external webcam)
- Microphone
- Broadband connection to the internet and related equipment (cable/DSL modem)
- Microsoft Office Suite installed (provided by the university)
- Access code to MyLab and Mastering - obtained through the UF All Access program

Individual colleges may have additional requirements or recommendations that students should review before starting their program.

An access code to MyLab and Mastering is required for the course. It can be obtained through the UF All Access program by authorizing charges to your student financial account and is provided at a reduced price. This option will become available starting one week before the beginning of the semester and ending three weeks after the first day of class. If you do not wish to authorize charges to your student financial account, you may purchase an access code at the UF bookstore instead, which will be more expensive than opting in.

Minimum Technical Skills

To complete your tasks in this course, experience with a scientific programming language is needed.

Honorlock

Honorlock is an online proctoring service that allows students to take exams on-demand 24/7. There are no scheduling requirements or fees.

You will need a laptop or desktop computer with an external webcam (side-angle view for Honorlock exams), a microphone, and a photo ID. You can use your phone as an external camera by downloading Camo or EpocCam App. See details on the [Honorlock Instructions](#) page.

Honorlock requires that you use the [Google Chrome](#) browser and add the Honorlock extension to Chrome.

For further information, FAQs, and technical support, please visit [Honorlock](#).

Zoom

Zoom is an easy-to-use video conferencing service available to all UF students, faculty, and staff. You can find resources and help using Zoom at the [University of Florida's Zoom](#) website.

Course Policies

Learning Quizzes

There are 27 sets of learning quizzes (LQ) given on the material of the lectures, and there are three attempts for each LQ. Students are expected to work individually on these assignments. The two lowest LQ grades will be dropped at the end of the semester.

MyLab Homework

Each online Homework assignment (HW) is a set of problems assigned on MyLab and numbered according to the Module covered. MyLab assignments will give you the necessary practice for mastering the material delivered in the lecture. Students have five attempts for most questions in MyLab assignments before the due date. There will be 27 homework assignments assigned, and the two lowest scores will be dropped at the end of the semester.

NOTE: The due date for each HW assignment (LQ and MyLab) is shown in the course calendar.

MATLAB Assignments

Four MATLAB assignments will be assigned during the semester, and each assignment must be completed using MATLAB software and submitted on Canvas by its due date. For more information on the assignments, visit the MATLAB Assignments tab on Canvas and read the instructions for each assignment.

There are five synchronous MATLAB Zoom sessions scheduled this semester. The Zoom sessions will be recorded and posted in Canvas for the students who cannot attend.

Exams

There will be three unit exams scheduled during the semester. The cumulative final exam (optional) can be taken at the end of the semester. If a student is satisfied with his grade, he is not required to take the final exam. If a student takes all three unit exams and final exam, then the lowest exam grade will be dropped.

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

Important Exam Policies: MAS 3114 requires that students take online exams through Honorlock on the listed dates. Each exam opens for 12 hours (from 12:00 PM noon to 11:59 PM) on the exam date, and we recommend starting your test no later than 10:30 PM since all exams are closed at midnight. Students with conflicts, including scheduled working hours or traveling, must make advance arrangements to take the exam at the scheduled time. UF will rely on a Test-In-Place plan this semester for online proctored exams. Each student is expected to use their place of residence, whether on or off campus, for

scheduled online exams. To complete an online proctored exam, students need a quiet space with adequate lighting, no distractions, and a strong internet connection.

The following applies to all exams:

1. Students are responsible for the material covered in lectures and assignments.
2. Before the test starts, you will need the following:
 - working web camera and microphone
 - stable internet connection
 - Google Chrome browser and Honorlock Chrome extension
3. Bring only the following while taking an online exam with Honorlock: Government issued photo ID (or Student Gator One ID) with a legible signature and blank scratch paper (up to 10 sheets).
4. The following items/actions are not permitted:
5. No writing is visible on the desk or walls. Make sure music/televisions are not playing in the background.
 - Close all other programs and/or windows on the testing computer before logging into the proctored test environment.
 - Communication or receiving assistance from others is not permitted during a proctored assessment.
 - Using a phone or any electronic device other than your test-taking device is prohibited. Headphones or smart watches are not permitted.
 - Remain visible in the web camera during the entire duration of the exam.
 - Leaving the room during the testing period is not permitted.
 - Dual monitors are not permitted.
 - No websites besides Canvas and the Honorlock proctoring extension should be used or open while taking a proctored exam.

Make-up Policies

We do not consider traveling or lack of internet access as a valid excuse for a make-up. You must provide documentation for makeup, and all makeup work must be approved by the course instructor and

- **Make-up Exams:** If you are missing an exam due to a legitimate reason (being sick, being away on the UF business, family emergency, or religious holidays), you may provide documentation and request to take an early makeup. To be eligible for an early makeup, you must send a request to the instructor before the exam, and an early makeup will be scheduled in the following week if your request is approved. A late request will not be accepted, and you may take the optional makeup exam at the end of the semester.
- **Lecture Quizzes, MyLab Assignments, and MATLAB Assignments:** There are no make-ups unless you have documented illness or other extenuating circumstances. You must contact the instructor before the deadline and request an extension.
- **Late Submissions:** Due Date is not the Do Date! DO NOT wait to start your assignments the day that they are due. You will be out of luck if there are any last-minute difficulties with your computer or access. However, lecture quizzes, MyLab homework, and MATLAB assignments can be submitted late with a 1% penalty for each hour beyond the due date.

Warning: Students should carefully consider and use their judgment to determine if it's worth submitting an assignment late. Consider the scenarios below:

Scenario 1: Student A scores 90% on a MyLab assignment before the deadline. If he submits the final question (10 points) after 24 hours, his grade will decrease to 76 points in the Canvas gradebook (90 --> 76).

Scenario 2: Student B scores 50% on a MyLab assignment before the deadline. If he submits the remaining question (50 points) after 24 hours, his grade will increase to 76 points in the Canvas gradebook (50 --> 76).

- **Extra Credit Assignments:** no make-ups on any extra credit assignments

If you have technical difficulties with Canvas, contact the UF Help Desk or call (352) 392-HELP(4357). Any requests for make-ups due to technical issues **MUST** be accompanied by the ticket number received from the Help Desk when the problem was reported. The ticket number will document the time and date of the problem. You **MUST** e-mail the course instructor before the due date to discuss a make-up.

Requirements for make-up exams, assignments, and other work in this course are consistent with university policies found on [UF's Attendance Policies](#) website.

As this is an online class, you are responsible for observing all posted due dates and are encouraged to be self-directed and take responsibility for your learning.

Grading Policy

I will make every effort to have each assignment graded and posted within one week of the due date. You have one week after a score has been posted to contact your instructor if there is a grading or recording issue. Any grade concerns must be communicated through Canvas Mail due to security/privacy issues. We will not consider any grading disputes or make grade adjustments at the end of the semester.

Course Grading Policy

Assignment	Weighted Percentage
27 Lecture Quizzes	7.00%
27 MyLab Assignments	28.00%
4 MATLAB Assignments	15.00%
3 Unit Exams	50.00%
	100.00%

Grading Scale

Percent	Grade	Grade Points
90.00-100%	A	4.00
86.50-89.99%	A-	3.67
83.00-86.49%	B+	3.33
79.50-82.99%	B	3.00

Percent	Grade	Grade Points
76.00-79.49%	B-	2.67
72.50-75.99%	C+	2.33
68.00-72.49%	C	2.00
64.50-67.99%	C-	1.67
61.00-64.49%	D+	1.33
57.50-60.99%	D	1.00
54.00-57.49%	D-	0.67
0-53.99%	E	0.00

See the [current UF grading policies](#) for more information.

UF Policies

University Policy on Accommodating Students with Disabilities

Students with disabilities requesting accommodations should first register with the [Disability Resource Center](#) (352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter to be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

University Policy on Academic Conduct

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 honesty 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 [Student Honor Code and Student Conduct Code](#) specify a number of behaviors that violate this code and possible sanctions. Furthermore, you must report any condition that facilitates academic misconduct to the appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Plagiarism

The [Student Honor Code and Student Conduct Code](#) state that:

"A Student must not represent as the Student's work all or any portion of the work of another. Plagiarism includes but is not limited to:

- Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
- Self-plagiarism is the reuse of the Student's own submitted work, or the simultaneous submission of the Student's own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.
- Submitting materials from any source without proper attribution.
- Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author."

Netiquette and Communication Courtesies

It is important to recognize that the online classroom is a classroom, and certain behaviors are expected when you communicate with your peers and instructors. These guidelines for online behavior and interaction are known as netiquette.

- [Security](#)
- [General Guidelines](#)
- [Email](#)
- [Discussion Boards](#)
- [Zoom](#)

Remember that your password is the only thing protecting you from pranks or more serious harm.

- Don't share your password with anyone.
- Change your password if you think someone else might know it.
- You can always log out when you are finished using the system.

Getting Help

Technical Difficulties

For help with technical issues or difficulties with Canvas, please contact the UF Computing Help Desk at:

- <http://helpdesk.ufl.edu>
- 352-392-HELP (4357)
- Walk-in: HUB 132

Any requests for make-ups (assignments, exams, etc.) due to technical issues should be accompanied by the ticket number received from the UF Computing Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You should email your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Health and Wellness

- **U Matter, We Care:** If you or someone you know is in distress, please email umatter@ufl.edu, call 352-392-1575, or visit [U Matter We Care](#) to refer or report a concern, and a team member will reach out to the student in distress.
- **Counseling and Wellness Center:** Visit the [UF Counseling & Wellness Center](#) website or call 352-392-1575 for information on crisis services and non-crisis services.
- **Student Health Care Center:** Call 352-392-1161 for 24/7 information to help you find the care you need or visit the [UF Student Health Care Center](#) website.
- **University Police Department:** Visit the [UF Police Department](#) website or call 352-392-1111 (or 9-1-1 for emergencies).
- **UF Health Shands Emergency Room/Trauma Center:** For immediate medical care in Gainesville, call 352-733-0111, or go to the emergency room at 1515 SW Archer

Road, Gainesville, FL 32608; Visit the [UF Health Shands Emergency Room/Trauma Center](#) website.

Academic and Student Support

- **Career Connections Center:** For career assistance and counseling services, visit the [UF Career Connections Center](#) website or call 352-392-1601.
- **Library Support:** For various ways to receive assistance concerning using the libraries or finding resources, visit the [UF George A. Smathers Libraries Ask-A-Librarian](#) website.
- **Teaching Center:** For general study skills and tutoring, visit the [UF Teaching Center](#) website or call 352-392-2010.
- **Writing Studio:** For help with brainstorming, formatting, and writing papers, visit the [University Writing Program Writing Studio](#) website or call 352-846-1138.

Course 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 on the GatorEvals [Providing Constructive Feedback](#) FAQ page. 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 the [GatorEvals](#) website. Summaries of course evaluation results are available to students at the [GatorEvals Public Results](#) page. More information about UF's course evaluation system can be found at the [GatorEvals Faculty Evaluations](#) website.

Tips for Success

Taking a course online can be a lot of fun! Here are some tips that will help you get the most of this course while taking full advantage of the online format:

- Schedule "class times" for yourself. It is important to do the coursework on time each week. You will receive a reduction in points for work that is turned in late!
- Read ALL of the material contained on this site. There is a lot of helpful information that can save you time and help you meet the objectives of the course.
- Print out the Course Summary located in the Course Syllabus and check things off as you go.

- Take full advantage of the online discussion boards. Ask for help or clarification of the material if you need it.
- Do not wait to ask questions! Waiting to ask a question might cause you to miss a due date.
- Do your work well before the due dates. Sometimes things happen. If your computer goes down when you are trying to submit an assignment, you'll need time to troubleshoot the problem.
- To be extra safe, back up your work to an external hard drive, thumb drive, or through a cloud service.

Honorlock Online Proctoring

In order to maintain a high standard of academic integrity and assure that the value of your University of Florida degree is not compromised, course exams will be proctored. Some students will take their exams online and will be proctored by Honorlock. You will take your exam electronically using the course website. You **do not** need to register for your exam. However, you will need to have installed and enabled the Google Chrome Honorlock extension prior to taking your exams. You will need a webcam, speakers, microphone, laptop or desktop computer, and a reliable internet connection to take your exams. Wireless internet is not recommended. You may also need a mirror or other reflective surface. Google Chrome is the only supported browser for taking exams in Canvas.

Before Your Exam

Prior to each exam and in the same environment you plan to take the exam, review the [Honorlock Guidelines](#) (PDF), and go to [Honorlock Support](#) to run a system check. This process takes just a few minutes and is completely free. If your course offers an Honorlock Practice Quiz, it is strongly recommended that you take it to practice using Honorlock before your exams.

Important: If you are unable to take an exam because of a technical glitch on your end, that is your responsibility. However, if you do experience technical difficulties during the exam, Honorlock's support menu will be visible on-screen for you to contact a support agent.

Getting Help

Honorlock offers 24/7/365 technical support to assist students before, during, and after exams. If you experience any trouble with Honorlock, begin a live chat on the [Honorlock Support](#) page, call 844-243-2500, or email Support@Honorlock.com.

Privacy and Accessibility Policies

For information about the privacy policies of the tools used in this course, see the links below:

- Gradescope
 - [Gradescope Privacy Policy](#)
 - [Gradescope Accessibility](#)
- Honorlock
 - [Honorlock Privacy Policy](#)
 - [Honorlock Accessibility](#)
- Instructure (Canvas)
 - [Instructure Privacy Policy](#)
 - [Instructure Accessibility](#)
- MATLAB
 - [MATLAB Privacy Policy](#)
 - [MATLAB Accessibility](#)
- Microsoft
 - [Microsoft Privacy Policy](#)
 - [Microsoft Accessibility](#)
- Pearson
 - [Pearson Privacy Policy](#)
 - [Pearson Accessibility](#)
- Sonic Foundry (Mediasite Streaming Video Player)
 - [Sonic Foundry Privacy Policy](#)
 - [Sonic Foundry Accessibility](#) (PDF)
- Vimeo
 - [Vimeo Privacy Policy](#)
 - [Vimeo Accessibility](#)
- YouTube (Google)

- [YouTube \(Google\) Privacy Policy](#)
 - [YouTube \(Google\) Accessibility](#)
- Zoom
 - [Zoom Privacy Policy](#)
 - [Zoom Accessibility](#)