


Course Information Page

Overview:


This course provides an introduction to Linear Algebra and its applications to Science and Engineering. For details on the topics we cover, please see the [Schedule of Lectures and Exams](https://canvas.ucsc.edu/courses/63871/pages/schedule-of-lectures-homework-and-reading) (<https://canvas.ucsc.edu/courses/63871/pages/schedule-of-lectures-homework-and-reading>).

Another feature of this course is a very gentle introduction to MATLAB ("Matrix Laboratory"). While MATLAB is a very powerful programming and computational environment, we will only be using it as a (powerful) graphing calculator for linear algebra. A collection of tutorials on some of the basics are posted [here](https://canvas.ucsc.edu/courses/63871/pages/matlab-tutorials) (<https://canvas.ucsc.edu/courses/63871/pages/matlab-tutorials>).

The Textbook for the course is [A First Course in Linear Algebra](https://lila1.lyryx.com/textbooks/KUTTLER_1/marketing/Kuttler-LinearAlgebra-AFirstCourse-2021A.pdf)  (https://lila1.lyryx.com/textbooks/KUTTLER_1/marketing/Kuttler-LinearAlgebra-AFirstCourse-2021A.pdf), by K. Kuttler, which is free (click the link).

General Organization:

Lectures, discussion sections, etc.

- Lectures are MWF, 9:00 - 11:30 am in the [Natural Science Annex](https://canvas.ucsc.edu/courses/63871/files/7514495?wrap=1) (<https://canvas.ucsc.edu/courses/63871/files/7514495?wrap=1>)  (https://canvas.ucsc.edu/courses/63871/files/7514495/download?download_frd=1), rm 103.
- Attendance is not mandatory, and the lectures will all be recorded and posted to Canvas afterwards . . .
- On the other hand: if you want to learn, then you should plan on attending all the lectures.

Canvas Discussion boards:

1. There is the [General Course Q&A](#) ([\\$CANVAS_OBJECT_REFERENCES/discussion_topics/gad2e53ca5f64d4dd9f31cabe53b581a7](#)) discussion for general questions about the administration of the course (not math questions).
2. There is the [Ask the Instructor\(s\)](#) ([\\$CANVAS_OBJECT_REFERENCES/discussion_topics/g4d11e864d1989d8702b5f0c8682e77f5](#)) discussion for questions about the material. You can think of this discussion as a kinda-sorta office hours.
3. There are 5 Weekly Discussion boards (one for each week of the session) for discussing that week's material *amongst yourselves*. You can think of these discussions as always-on study groups.
 - You can post questions/comments about the homework or the lectures.
 - You can answer other students' questions.

- I will monitor the discussions and contribute as necessary, but they are meant primarily for you (the students) to help each other master the material.
 - You can earn up to 5 points of extra credit for constructive contributions to the weekly discussion boards. 🤔
 - The EC points for Discussion Board participation accumulate *slowly* throughout the session. *Constructive* contributions will usually earn you 0.5 to 1 point. In other words, to earn these EC points you should plan on contributing constructively and consistently throughout the session.
 - What counts as "constructive" is up to me. 😊
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Homework and reading:

Reading and homework assignments are listed in the schedule of lectures.

- ***The lectures are prepared with the assumption that you have done the required reading (at least once) before the lecture.*** If you don't, you may feel somewhat lost in the lecture.
 - You should do the assigned reading for each lecture before the lecture, and then again afterwards.
 - The first time through, your objective is to get a sense of what we will be discussing in class.
 - The second (third, fourth, etc.) time through, you should read the material in more depth.
 - You should work on the homework for the assigned lecture after the lecture, with your second (third, fourth, etc.) reading.
 - Homework is ***not collected or graded***, but the more you do, and the more seriously you do it, the better you will master the material (which will likely have a positive effect on your quiz and exam scores).
 - Questions and answers about homework problems are an excellent source of (constructive) contributions to the weekly discussion boards.
 - Solutions to many of the homework problems are collected in an appendix of the book.
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Quizzes:

- There will be one quiz every week (on Canvas).
 - So, 5 quizzes total.
 - Each quiz is worth 7 points.
 - So, 35 possible points, total.
 - You need 30 quiz points throughout the quarter to earn a 100% quiz score for the course.
 - The quizzes are all multiple choice (or similar, e.g., true/false).
 - Quizzes are all open book and open notes (and open Canvas).
 - You may also work together, help each other, etc. on the Quizzes 🤔
 - The quizzes open on Mondays in the evening, and are open until the Thursday at 11:59 pm.
 - Once you start a quiz, you will have one hour to complete it.
 - You have three tries for each quiz, and your higher score is recorded.
 - There are ***no make-up quizzes*** (or extensions). **For any reason. . . Ever.**
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Exams:

- There are two Canvas Exams, one at the end of Week 2 (Friday, 7/7) and one at the end of Week 4 (Friday, 7/21).
 - Each Canvas Exam is worth 25 points.
 - The Exams will be open from Friday afternoon until Saturday at 11:59 pm.
 - Once you start the exam, you will have two hours to complete it.
 - The exams will be a mix of multiple choice and free response questions.
 - Answers to the free response questions can be typed into the available text-boxes (using the [Equation Editor \(https://canvas.ucsc.edu/courses/63871/pages/for-exams-the-equation-editor-a-brief-tutorial\)](https://canvas.ucsc.edu/courses/63871/pages/for-exams-the-equation-editor-a-brief-tutorial) for the math-y bits) or you can [upload images/pdfs \(https://canvas.ucsc.edu/courses/63871/pages/for-exams-uploading-an-image-of-your-work-to-an-exam-text-box\)](https://canvas.ucsc.edu/courses/63871/pages/for-exams-uploading-an-image-of-your-work-to-an-exam-text-box) of your work.
 - In any case, your work should be written in complete sentences and **legible**.
 - ***If we can't read/understand your work, you won't get credit for it.*** 🙄
 - Canvas Exams are also open book and open notes (and eventually, open Matlab).
 - You may ***not*** collaborate on the Canvas Exams. Each student should work alone.
 - The Final Exam will be in person, in the classroom on the last day of the course (Friday, 7/28).
 - The Final will be all free response, and will be worth 25 points.
 - You will be allowed one 8.5x11 page of notes (both sides), and a simple scientific calculator (no graphing calculators).
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Your Grade.

Your overall grade in the class is calculated as follows:

- The quizzes contribute 30 points to your final score:
 - **Quiz contribution** = the sum of the quiz points you earned, or 30, whichever is smaller.
 - This means that you don't have to ace all the quizzes to earn full-quiz-credit.
- The Canvas Exams contribute 45 points to your total score:
 - **Canvas Exam contribution** = $1.2 \times (\text{your higher score}) + 0.6 \times (\text{your lower score})$.
- The **Final Exam contributes** the remaining 25 points.

Letter grades are assigned according to the ranges:

98 - 100	A+
93 - 97	A
90 - 92	A-
87 - 89	B+
83 - 86	B

80 - 82	B-
77 - 79	C+
68 - 76	C
▶ 68 - 69	requires \geq 50% on the final for a C
60 - 67	C-
50 - 59	D
0 - 49	F

Important:

- ▶▶ The final exam is mandatory – if you don't take the final, you don't pass.
- ▶▶ If your overall score in the class is 68 or 69, you need to earn at least 60% on the final exam for a C.
- ▶▶ If you are taking the class P/NP, you need C or better to pass (C- is not passing).
- Your letter grade in the class is meant to reflect your mastery of the material and is determined by the rubric describe above, nothing else.
 - All students are graded in exactly the same way.
 - If you need a certain minimum grade — to declare your major, to maintain a certain GPA, etc. — you need to earn it.
- You can earn up to 5 **Extra Credit** points for your contributions to the weekly discussion boards. 🙄 🙄
 - Five points can be the difference between passing and not, between a C and a B, or between a B and an A.

Academic integrity

The Canvas quizzes and exams in this class **are not proctored**, but we expect the highest level of **academic integrity** from all students in the class.


Academic integrity is a core principle of the UCSC community, and we expect all of our students to hold themselves to the highest standard. To quote from the [UCSC academic integrity page](https://registrar.ucsc.edu/navigator/section1/academic-integrity.html)

(<https://registrar.ucsc.edu/navigator/section1/academic-integrity.html>):

Academic integrity is the cornerstone of a university education. Academic dishonesty diminishes the university as an institution and all members of the university community. It tarnishes the value of a UCSC degree.

All members of the UCSC community have an explicit responsibility to foster an environment of trust, honesty, fairness, respect, and responsibility. All members of the university community are expected to present as their original work only that which is truly their own. All members of the community are expected to report observed instances of cheating, plagiarism, and other forms of academic dishonesty in order to ensure that the integrity of scholarship is valued and preserved at UCSC.

With this in mind, the following rules are in effect for all Canvas exams in this course:

1. You should **work alone** on the exams. Collaboration on exams with other students in the class, or outside help, are **forbidden**.
2. You **may use** the following resources during the Canvas exams:
 - Your notes.
 -  **Take advantage of this: as part of your preparation for each exam, write specific notes to use during that exam.**
 - The course textbook.
 - Course material on Canvas.
 - Pen or pencil, paper and a scientific calculator.
3. You may be allowed to use Matlab on one or both Canvas Exams.
4. Anything not on the list above is **forbidden**.

Consequences for breaking these rules:

- In all cases, students who break one or more of these rules will. . .
 - . . . **receive a score of 0 on the (entire) exam in question, and in most cases**
 - . . . **be reported to their college provost for further disciplinary action (which may range from a warning to suspension and even expulsion).**
- In some cases (depending on the severity of the infraction), students who break these rules will receive an automatic failing grade in the class.
- For more information, please visit the UCSC page on [Academic Dishonesty \(https://ue.ucsc.edu/academic-misconduct.html\)](https://ue.ucsc.edu/academic-misconduct.html).

"But I don't think that I can pass this class without breaking the rules..."

You can, and we are here to help.

I know from years of experience that every student in this class can succeed with enough effort and some help. How much effort you put in to this course is up to you. Generally speaking, the more the better. The recommendation at UCSC for a 5 week summer session course is 30 hours a week, including lectures, sections and your own study time). In any case, the TAs and I are here to help you succeed. We can help you with the material and we can suggest learning strategies.

Also, please remember that **all students are graded the same**, as described in the rubric above. We don't adjust grades based on what you want or need. If you need a specific minimum grade in order to declare in your

major, or to maintain your GPA at a certain level to keep a scholarship, then you need to *earn that grade*, and we are here to help you do that.

But the first step has to be yours. If you are feeling lost, stressed out, or worried about your grade, then please ask us for help. And don't wait — the deeper we get into the quarter, the fewer opportunities there are to improve your standing in the class. If you feel uncomfortable (or shy) about approaching us, then perhaps you can find a like-minded student in the class, and approach us together.

Support for students with disabilities:

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me by email, preferably within the first two weeks of the quarter. At this time, I would also like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at [831-459-2089](tel:831-459-2089) or by email at drc@ucsc.edu (<mailto:drc@ucsc.edu>).

Support for students with other difficulties:

While we sincerely hope that you will be able to pursue your studies peacefully and worry-free, we are aware that in some cases difficulties happen that are beyond your control. If that happens, here are several campus resources that you may want to consider contacting:

- UC Care: <https://care.ucsc.edu/who-we-are/about-care.html> (<https://care.ucsc.edu/who-we-are/about-care.html>).

which is a confidential space to discuss issues of dating violence, sexual assault and stalking.

- Slug Support: <https://deanofstudents.ucsc.edu/slug-support/program> (<https://deanofstudents.ucsc.edu/slug-support/program>).

where you can ask for help on many practical issues, including dealing with a financial crisis, problems with your living situation, computers, books, etc.

- CAPS: <https://caps.ucsc.edu> (<https://caps.ucsc.edu/>).

which provides counseling and psychological services to students

Title IX reporting disclosure:

Title IX prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, you can receive confidential support and advocacy at the Campus Advocacy Resources & Education (CARE) Office by calling (831) 502-2273. In addition, Counseling & Psychological Services (CAPS) can provide confidential, counseling support, (831) 459-2628. You can also report gender discrimination directly to the University's Title

IX Office, (831) 459-2462. Reports to law enforcement can be made to UCPD, (831) 459-2231 ext. 1. For emergencies call 911.

Faculty and Teaching Assistants are **mandated reporters**: we are required under the [UC Policy on Sexual Violence and Sexual Harassment \(https://policy.ucop.edu/doc/4000385/SVSH\)](https://policy.ucop.edu/doc/4000385/SVSH) to inform the Title IX Office should we become aware that a student has experienced sexual violence or sexual harassment.