

Math 110 Summer 2016 Course Syllabus

1 General Information

Lectures: MTWTh 8:00 - 10:00 am at 141 Giannini Hall

Instructor: Kai-Chieh Chen

Office Hours: Mon 10:00-11:30 am, Wed 1:30-3:00 pm at 812 Evans Hall

Email: kaichiehchen@berkeley.edu

Course Website: <http://math.berkeley.edu/~kaichieh/1102016.html>

Textbook: *Linear Algebra Done Right*, 3 ed., Axler.

Reference Books:

- (1) *Linear Algebra*, 4 ed., Friedberg, Insel, Spence.
- (2) *Linear Algebra and Its Applications*, 4 ed., Strang.

Prerequisite: 54 or a course with equivalent linear algebra content.

Reader: Yinan Zhang

Please be sure that you own the correct edition of the textbook as most homework will be assigned from it. You could purchase the book from the Cal Student Store or Amazon.com. It is possible to access the book for free under the following website if you are connected to the campus wifi network.

<http://link.springer.com/book/10.1007/978-3-319-11080-6>

All mathematical questions should be directed to the instructor. All administrative questions should be directed to Thomas Brown (brown@math.berkeley.edu).

2 Schedule

Week	Date	Topics	Reading	Homework Assigned
1	June 20	Vector Spaces	1.A - 1.C	Problem Set 1
	June 22	Finite Dim. Vector Spaces	2.A - 2.C	Problem Set 2
2	June 27	Linear Maps I	3.A - 3.C	Problem Set 3
	June 29	Linear Maps II	3.D - 3.E	Problem Set 4
3	July 5	Linear Maps III	3.F, 10.A - 10.B	Problem Set 5
	July 6	Polynomials	4	
4	July 11	Invariant Subspaces I	5.A - 5.B	Problem Set 6
	July 13	Midterm Review		
5	July 18	Invariant Subspaces II	5.B - 5.C	Problem Set 7
	July 20	Inner Product Spaces	6.A - 6.C	Problem Set 8
6	July 25	Spectral Theorem	7.A - 7.B	Problem Set 9
	July 27	Isometries, SVD and Applications	7.C - 7.D	Problem Set 10
7	August 1	Jordan Form I	8.A - 8.B	Problem Set 11
	August 3	Jordan Form II	8.C - 8.D	Problem Set 12
8	August 8	Operators on Real IPS	9.A - 9.B	Problem Set 13
	August 10	Final Review		

It is possible that I will use Tuesday/Thursday to lecture if we are far behind this schedule.

3 Grading

Grades are computed by taking 20% homework, 40% midterm, 40% final. The final exam score will override lower midterm score, so it's possible the final exam may count for 80%. The final letter grades will be based on a curve.

Homework: will be posted on the course website every Monday and Wednesday. Homework is due Thur/Tue at the beginning of the class if it is assigned on Mon/Wed. If you are not able to submit your homework at the required time then you can leave it outside my office **at any time before it is due. Please email me if you intend to leave your homework outside my office.**

Although collaboration on homework is welcome and encouraged, if you are working with another student, please state that you have done so (eg. if you work with E. Nother on a particular question just write "This question was completed with E. Nother."). However, all homework assignments **must be written up individually**. Failure to declare collaboration with another student will result in a grade penalty (and it is remarkably simple to tell when students have copied each other). Also, if you have used a textbook or online notes to help you understand/solve a problem, please cite a reference (eg. if you used pages 52-60 of Prof. X's online lecture notes just write "This question used p.52-60 of Prof. X's online lecture notes, available at www.math.com/~profx/linalg).

Each homework will be graded on a scale of 0 – 3 points with 0 = no effort, 1 = effort with some progress, 2 = good progress, 3 = good solution. You will only need to submit your solutions to those problems marked as *graded problems*. For the other problems, we will discuss during the discussion sections every Tuesday and Thursday.

In order to encourage students to do more problems in homework than graded ones, you get *one* chance to add two more points to your total homework scores if you present your solution to some non-graded problem during the discussion sections (if in the end of the semester, you get full scores from the homework part, unfortunately, I will not give you these 2 extra points). You have to email me before the due date of the homework to let me know you intend to do so. Then I will let you know if the problem you want to choose is picked or not. If it is picked, you have to find another problem. Again, though collaboration is welcome, but **for each problem, only one person can present**. Thus, I will suggest that a group should try to do multiple non-graded problems.

Midterm: in class. **July 14, 2016**. No make-up midterm.

Final: in class. **August 11, 2016**. No make-up final.