

# 4153 FINITE DIMENSIONAL VECTOR SPACES

Fall 2018

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| <b>Instructor:</b> Fang-Ting Tu                            | <b>Time:</b> 1030 – 1120 MWF |
| <b>Email:</b> <a href="mailto:ftu@lsu.edu">ftu@lsu.edu</a> | <b>Place:</b> 243 LOCKETT    |

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**Office and Office Hours:** Lockett 246. Monday 11:30 am -12:30 pm, Thursday 1:45 -3 pm, or by appointment.

**Text Book:** Linear Algebra by S. Friedberg, A. Insel, and L. Spence. (Person)

## References:

- Linear Algebra Done Right, Sheldon Axler. (Springer UTM).
- Linear Algebra, Serge Lang. (Springer UTM).

**Prerequisites:** MATH 2085 Linear Algebra or MATH 2090 Elementary Differential Equations and Linear Algebra.

## Tentative Course Outline:

- Vector Spaces: 1.2~1.6.
- Linear Transformations: 2.1~2.5.
- Determinants 4: 4.2~4.4.
- Diagonalization 5: 5.1, 5.2, 5.4.
- Inner Product Spaces: 6.1~6.6.
- Canonical Forms: 7.1~7.3. (Optional)

**Grading Policy:** Total 100 points. No make-up exams will be given unless a compelling documented excuse is presented.

1. **Homework (15 points):** Problems will be assigned and due on every Friday. You can discuss problems with other students and consult any resources. However, the solutions you hand in must be written in your own words. On the homework you turn in, please indicate the students whom you work with and the sources.
2. **Midterms (60 points, 9/21, 10/19, 11/21):** **NO books or notes are permitted.** Most of the problems on the tests will be similar to the examples and the assigned problems. The topics covered in each test will be announced a week before the test.
3. **Final Exam (25 points):** **Take-Home, due on 12:00 pm Dec 7, 2018.** You can use only the textbook and notes, but you are not allowed to discuss problems with anyone including any online resources.

Basically, the scale is as follows.

|                |                 |                |            |                |            |                |            |   |           |
|----------------|-----------------|----------------|------------|----------------|------------|----------------|------------|---|-----------|
| A <sup>+</sup> | 97 <sup>+</sup> | B <sup>+</sup> | 87 – 89.9̄ | C <sup>+</sup> | 77 – 79.9̄ | D <sup>+</sup> | 67 – 68.9̄ | F | 0 – 59.9̄ |
| A              | 93 – 96.9̄      | B              | 83 – 86.9̄ | C              | 73 – 76.9̄ | D              | 63 – 66.9̄ |   |           |
| A <sup>-</sup> | 90 – 92.9̄      | B <sup>-</sup> | 80 – 82.9̄ | C <sup>-</sup> | 69 – 72.9̄ | D <sup>-</sup> | 60 – 62.9̄ |   |           |

### Course Policy:

- The University is committed to making reasonable efforts to assist individuals with disabilities in their efforts to avail themselves of services and programs offered by the University. To this end, Louisiana State University will provide reasonable accommodations for persons with documented qualifying disabilities. If you have a disability and feel you need accommodations in this course, you must present a letter to me from Disability Services in 115 Johnston Hall, indicating the existence of a disability and the suggested accommodations.

### Academic Honesty: *Excerpt taken from the LSU Code of Student Conduct, Section 8.0, page 18*

#### 8.1 Academic Misconduct

- A. High standards of academic integrity are crucial for the University to fulfill its educational mission. To uphold these standards, procedures have been established to address academic misconduct.

As a guiding principle, the University expects Students to model the principles outlined in the University Commitment to Community, especially as it pertains to accepting responsibility for their actions and holding themselves and others to the highest standards of performance in an academic environment. For example, LSU students are responsible for submitting work for evaluation that reflects their individual performance and should not assume any assignment given by any professor is a group effort or work unless specifically noted on the assignment. In all other cases, students must assume the work is to be done independently. If the student has a question regarding the instructor's expectations for individual assignments, projects, tests, or other items submitted for a grade, it is the student's responsibility to seek clarification.

Any Student found to have committed or to have attempted to commit Academic Misconduct is subject to the disciplinary sanctions set forth in Section 9.0.

- B. An instructor may not assign a disciplinary grade, such as an "F" or zero on an assignment, test, examination, or course as a sanction for admitted or suspected Academic Misconduct in lieu of formally charging the student with Academic Misconduct under the provisions of this Code. All grades assigned as a result of accountability action must be approved by the Dean of Students or designee.