

# Applied Linear Algebra

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**Timetable:** 20 hrs. Class meets every Tuesday and Thursday, 10:30–12:30. First lecture on Tuesday, March 3-rd, 2015. Room DEI/G, 3-rd floor, Dept. of Information Engineering, via Gradenigo Building.

**Course requirements:** A good working knowledge of basic notions of linear algebra as for example in [1]. Some proficiency in MATLAB.

**Examination and grading:** Grading is based on homeworks or a written examination or both.

**Aim:** We study concepts and techniques of linear algebra that are important for applications with a special emphasis on linear Least Squares problems, their numerical treatment and their statistical interpretation. A wide range of exercises and problems will be an essential part of the course and constitute homework required to the student.

## Course contents:

1. Review of some basic concepts of L.A. and matrix theory
2. Deterministic Least Squares and the projection theorem
3. Statistical Least squares
4. Numerical treatment of Least Squares problems and regularization techniques

## References:

- [1] Gilbert Strang's linear algebra lectures, from M.I.T. on You Tube
- [2] Notes from the instructor