Convex Optimization (F'19)

This course is about convex and robust optimization.The image above illustrates the geometry of 2x2 positive semidefinite matrices, which are a central part of the course . The course covers two main parts: one is on convexity, conic optimization, duality; the other is on robustness, stochastic programming, and applications. The course **requires** good knowledge of basic optimization and linear algebra, as covered in [EECS 127 / 227ATLinks to an external site.](https://www2.eecs.berkeley.edu/Courses/EECS227AT/).

* **Schedule** : [here](https://bcourses.berkeley.edu/courses/1485514/files/75479427/download?wrap=1)[download](https://bcourses.berkeley.edu/courses/1485514/files/75479427/download?download_frd=1).
* **Instructors:**
  + [Somayeh SojoudiLinks to an external site.](https://www2.eecs.berkeley.edu/Faculty/Homepages/sojoudi.html) (sojoudi at berkeley), OH: Tue 2-3pm, 5114 Etcheverry Hall, **ending October 8.**
  + [Laurent El Ghaoui (Links to an external site.](http://www.eecs.berkeley.edu/~elghaoui/)elghaoui at berkeley), OH: Tue 2-3pm, 421 Sutardja Dai Hall, **starting October 15**.
* **Teaching assistant**: Armin Askari (aaskari at berkeley), OH: 9-10am Wednesday, Cory 367.
* **Material**: Main references are
  + Part I: [Convex optimization (Links to an external site.)](http://www.stanford.edu/~boyd/cvxbook/) (S. Boyd and L. Vandenberghe), [Linear and nonlinear programming (Links to an external site.)](https://www.springer.com/gp/book/9780387745022) (D. Luenberger), [Nonlinear programming (Links to an external site.)](http://www.athenasc.com/nonlinbook.html) (D. Bertsekas)
  + Part II: [Robust optimization (Links to an external site.)](https://press.princeton.edu/titles/9099.html) (A. Bental, L. El Ghaoui, A. Nemirovski)
  + Background material: the livebook [here (Links to an external site.)](http://livebooklabs.com/keeppies/c5a5868ce26b8125) (Registration is free.) This class assumes a strong knowledge of linear algebra, as covered in [EECS 127 / 227ATLinks to an external site.](https://www2.eecs.berkeley.edu/Courses/EECS227AT/).
* **Homeworks**: there will be about 5 Homeworks, which require the use of Matlab or Python.
* **Exams**: There is a midterm (on Oct. 15), no final and a project.
* **Project:**You are encouraged to form a project team of 4 (no less than 3, and 5 max). More details on projects [here](https://bcourses.berkeley.edu/courses/1485514/files/75479349/download?wrap=1)[download](https://bcourses.berkeley.edu/courses/1485514/files/75479349/download?download_frd=1); examples of past projects: [here](https://bcourses.berkeley.edu/courses/1485514/files/75478979/download?wrap=1)

[Actions](https://bcourses.berkeley.edu/courses/1485514)

 and [here](https://bcourses.berkeley.edu/courses/1485514/files/75479348/download?wrap=1)

[Actions](https://bcourses.berkeley.edu/courses/1485514)

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* **Grading**: 40% homework, midterm (30%), project (30%).