Statistical Computing

Yu Sheng

Center for Statistical Science

Fall 2018

Topics

- ▶ Computational stability
- ▶ Linux, R
- ▶ Numerical linear algebra
- ▶ Mathematical optimization
- ▶ Random number generation
- ▶ EM algorithm
- ▶ Resampling
- ▶ Monte Carlo methods

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Textbooks

▶ Main text: **lecture notes and slides**

▶ References:

  ▶ **Numerical Linear Algebra**, Lloyd N. Trefethen and David Bau, III.

  ▶ **Computational Statistics**, 2nd Edition, Geof Givens and Jennifer Hoeting.

  ▶ **统计计算**，李东风，高等教育出版社.

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Assignments

▶ For programs: submit codes and results online

  ▶ Code must be properly commented

  ▶ For R codes it is recommended to use R Markdown.

▶ For mathematical deductions: submit **hardcopy**

  ▶ Handwritten, LaTeX, or MS Word all accepted

  ▶ No electronic submission accepted

  ▶ Submit at the beginning of class of the following week

▶ Late submissions receive no score

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Evaluation

- ▶ Assignments (30%)

- ▶ Midterm exam (~8th week, 30%)

- ▶ Final exam (16th week, 40%)

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Office hours

▶ Friday 2pm-3pm by appointment: syu@tsinghua.edu.cn

▶ Teaching assistants

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