Statistical Prediction
MSBD5013

Instructor & T.A.

- Instructor: Kani Chen. Email: makchen@ust.hk; Phone: 2358-7425; Office: Room 3426. Office hour: Walk-in or by appointment.
- TA:

Textbook & Reference Books.

- Textbook (ISLR): An Introduction to Statistical Learning, with applications in R. (Springer 2013, ISBN9781461471370, eISBN: 9781461471387) by Gareth James, Daniela Witten, Trevor Hastie and Robert Tibshirani.

  Book website: http://www-bcf.usc.edu/ gareth/ISL/data.html
- Reference (ESL): Elements of Statistical Learning.

  (Springer 2009, ISBN9780387848570, eISBN9780387848587) by Trevor Hastie, Robert Tibshirani and Jerome Friedman.

  Book website: http://statweb.stanford.edu/ tibs/ElemStatLearn/

Intended Learning Outcomes:

- Students will understand basic statistical methodologies in statistical learning and prediction. They can apply linear regression, classification, resampling methods and nonlinear methods including trees, support vector machines and other methods to make statistical inference and prediction and justfication the accuracy. Students will practice R coding and apply them to real data analysis.

Gradings and Exams:

- Midterm Exam 50% and Final 50%.

Tentative Schedules.

- Wk 1. Chapter 1-2. Introduction and overview.
- Wk 2-3. Chapter 3. Linear regression models.
- Wk 4-5. Chapter 4. Classification.
- Wk 6. Chapter 5. Resampling and model checking.
- Wk 7. Chapter 6. Linear model selection and regularization.
- * Midterm exam *tentatively* on Week 8.
- Wk 8-9. Chapter 7. Nonlinear methods.
- Wk 10 . Chapter 8. Tree-based methods.
- Wk 11. Chapter 9. Support vector machines.
- Wk 12-13. Chapter 10. Unsupervised learning and other topics. (if time allows.)
- Remark: The above course schedule may be subject to minor changes depending upon the teaching progress.