

Syllabus for STA410/STA2102

“Statistical Computation”

Instructors Prof. Radu Craiu (lecturer) and Wei Deng (Teaching Assistant)

When and Where Wednesdays 11am-12pm and Thursdays 1-3pm in SS1085.

Textbook Computational Statistics by Geof Givens and Jennifer Hoeting.

- Topics
1. Optimization (Newton Method, Fisher Scoring).
 2. Combinatorial Optimization (Genetic Algorithms).
 3. EM algorithm and Its variants.
 4. Markov chain Monte Carlo.
 5. Bootstrapping
 6. Kernel Density Estimation
 7. Penalized Regression

Software We will use R to illustrate the concepts and implement the algorithms.
All the data files are available online at:
<http://www.stat.colostate.edu/computationalstatistics/>

Marking The mark is based on 2-3 homework assignments (30%), one in-class midterm examination (30%) and one final examination (40%).

Policy The homework cannot be turned in late. You will receive marks only for the work turned in at deadline. Those who miss the midterm will have to take a make-up oral examination.