

STAT 597D, Mixture models

Spring 2003

Instructor: Dr. Bruce Lindsay. Room:, 422B Thomas Building. (Enter 422 without knocking, and then knock at inner door 422B.) Phone: 865-1220. Email: bgl@psu.edu.

Class time & location. Tu/Th 11:15-12:30 in 327 Thomas

Teaching assistant. None.

Office hours. Thursday, 3:00-3:45 PM.

Text. The monograph by Lindsay (1995) will provide some of the material of the course. It is available from the instructor at his cost (\$15, cash please)

Targeted coverage: I will hand out a “table of contents” of possible topics. The coverage of the course will include

- Building models, together with the associated questions of identifiability and diagnostics
- Fitting models, including methods of estimation, robustness of inference, and the computation required.
- Choosing models, including confirmatory testing and distance based model selection.
- If time allows, more advanced topics in asymptotic analysis.
- If members of the class have special topics of interest that they would like to hear about, please let me know.

Course requirements. Students taking the course for *credit* will be expected to (1) do assigned homework and (2) complete a project, as described below.

Homework. Homework will be assigned during the lectures. It will be due on the following Tuesday, and we will discuss the solutions during the last fifteen minutes of class, when you may be called upon. At the end of the course you will be expected to turn in a completed and corrected set of homework.

Project. To obtain credit, you will be expected to do a project. You will need to meet with me in late February to make a final decision. Possible projects include oral or written presentations based on

- Data analysis
- Computer simulations
- Graphics
- Reading a research paper

Resources. The course material could be challenging for students with weaker mathematical backgrounds, as the subject of mixtures requires pretty sophisticated tools to gain understanding. I am open to doing background explanations as needed, upon request.