Statistics 516X

Statistical Design and Analysis of Microarray Experiments

1/9/2007

Instructor: Dan Nettleton

- 111 Snedecor Hall
- http://www.public.iastate.edu/~dnett/
- 294-7754
- Office Hours: Tuesday and Thursday from 2:10-3:00 and other times appointment

About Statistics 516X

- Statistics course rather than a biology or technology course.
- Course content heavily influenced by my interactions with ISU faculty, students, and staff engaged in microarray experimentation.
- We will focus on statistical problems that are most relevant to microarray research going on at Iowa State.
- We will study design of experiments that use microarray slides rather than design of the slides themselves.

Students completing STAT 516X should

- be able to provide expert advice on microarray experimental design,
- perform appropriate analyses in collaboration with biological researchers,
- be ready to consider research problems in the statistical design and analysis of microarray experiments,
- gain a sound understanding of the statistical principles important for good microarray experimental design and analysis.

STAT 416X

- STAT 416X is also offered this semester.
- It meets immediately after this course.
- 416X is for graduate students outside of statistics interested in learning how to apply statistics to microarray experimentation.
- STAT 401 is the prerequisite for 416X.
- Courses will be similar at first but will diverge as the semester continues.

5

Computing

- We will use R extensively throughout the course.
- Students are expected to be familiar with R.
- We will also use SAS occasionally.

6

No Required Textbook

- Notes posted prior to class.
- *Cartoon Guide to Genetics* by Larry Gonick and Mark Wheelis
- Microarray books? Search Amazon.com Books using keyword *microarray*.

7

Grading in Statistics 516X

- 25% homework
- 25% midterm exam
- 15% project (written & oral presentation)
- 35% final exam

See syllabus for more detail.

8