Stat 13 Lecture 24 regression (continued)

• Application in drug discovery
  (http://dtp.nci.nih.gov)

• COMPARE

• Antitubulin

• Taxol (EX=-7.9; SD=.78)
  • vinblastine sulfate (EY=-8.1; SD=.81); correlation =0.799
  • Prediction
  • Many cell-lines are not tested on Taxol, but were tested on vinblastine sulfate
  • Can use vinblastine sulfate to predict Taxol
Taxol = -7.9 + 0.799(7.8/8.1)(vinblastine sulfate +8.1)

• Malanoma UABMEL3 -7.9 (vinblastine sulfate)
• No taxol data
• Predicted Taxol = -7.9 + 0.799(7.8/8.1)(-7.9+8.1)
• = -7.75
Vertical axis: vinblastine sulfate

Cannot use this line to predict Taxol from vinblastine sulfate;

Redraw the graph by exchanging X and Y
Percentile rank problem:

Suppose only the ranking of x is given. Predict the ranking for y.

The trick is to pretend X and Y both have mean 0 and standard deviation 1

The reason you can do so is because ranking does not change under scale changes

Step 1 convert the rank to x by using normal table

Step 2 find y by using $y = r \times x$

Step 3 convert y back to percentile rank using normal table again.
Example