Case 3 – Intervals
Statistics 8801
Spring Semester 2009
to be discussed February 13

A client comes to you with the following problem. His medical device company purchases monofilament fibers from a supplier. These fibers need to be between .09 and .11 mm in diameter to be usable in the product. He has a sample of 40 fibers and has measured the diameters obtaining a mean of .102 and a standard deviation of .01. One of his employees took STAT 3011 and computes a 99% confidence interval for the mean as

$$.102 \pm 2.71 \frac{.01}{\sqrt{40}} = (.0977, .1063)$$

This employee concludes that with 99% probability, the fibers will be within our tolerances.

Here are some possible questions for consideration in your discussion. Did the employee do the correct analysis? If so, was his conclusion correct? If not, what should have been done? Do the methods depend on any assumptions? Are these assumptions met? What questions would you ask about the sample of 40 fibers? What general class of methods is used to make inference about proportions of a distribution from a sample? How do you explain things to the client?

The file `intervals.txt` on the course website contains the actual data, in one column with the column heading `y`. You may wish to do some analysis on the data to aid your presentations.

Name	email
Chen Xing	xingx011
Luke Chmura	chmur002
Tianyang Zhou	zhoux228
Jinghan Meng	mengx035

Name	email
Fanhuan Zhou	zhoux086
Qihui Chen	chen1006
Shengjie Zheng	zheng077
Michael Soma	soma0038

Name	email
Sally Gustafson	gusta582
Aysel Yilmaz	yilma005
Ji Hoon Ryoo	ryoox001
Julia Molony	molo0018