Faculty Stats, Session 2

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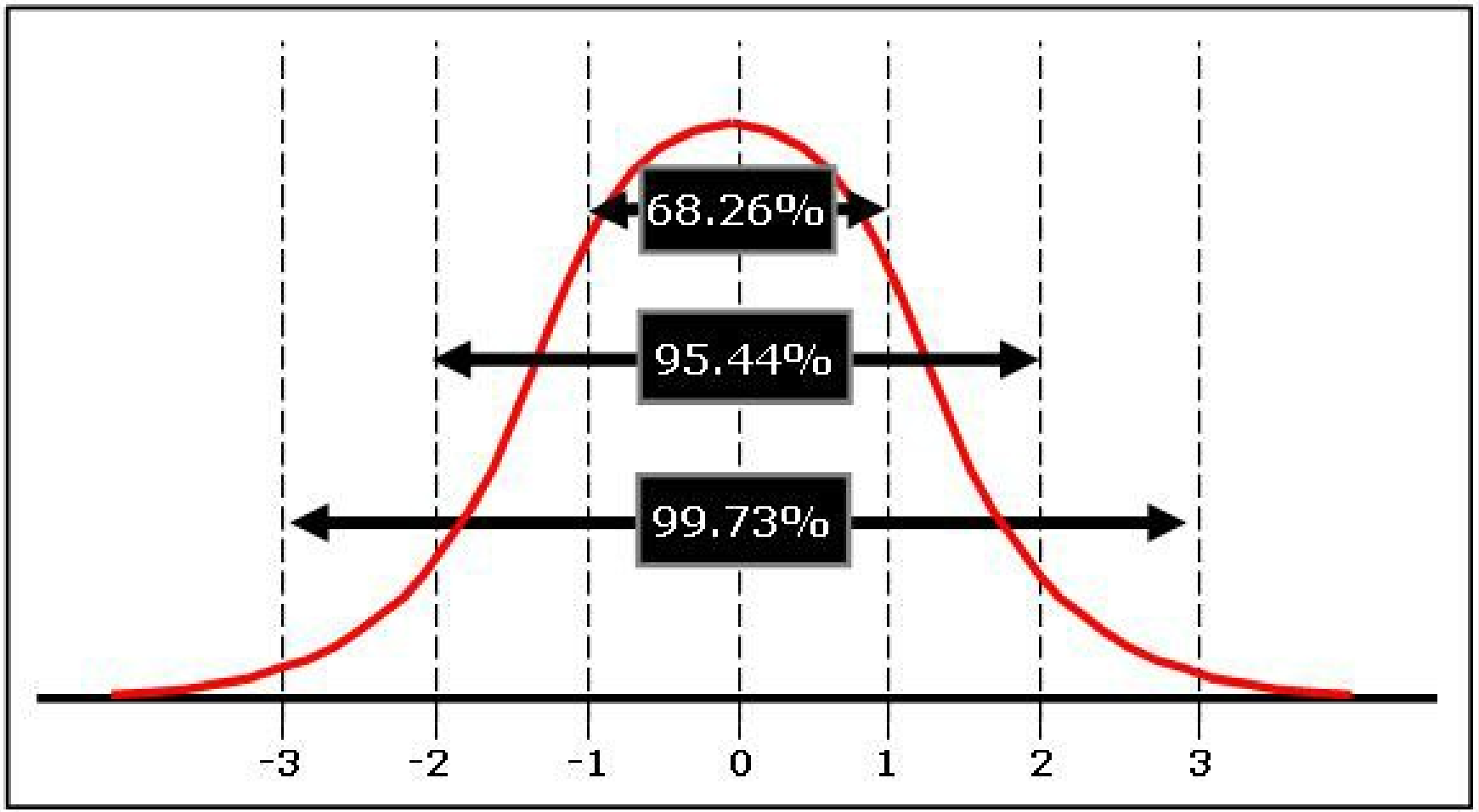
A personal attempt to understand statistics

- The morning I taught this class in J-term, my mom told me that she had just received results from her most recent oncologist visit.
- Her CEA was 8.2
- Her average for the last two years is 3.3, based on quarterly tests.
- She has had colon cancer twice, with her last surgery in the summer of 2011.
- How do you interpret this?

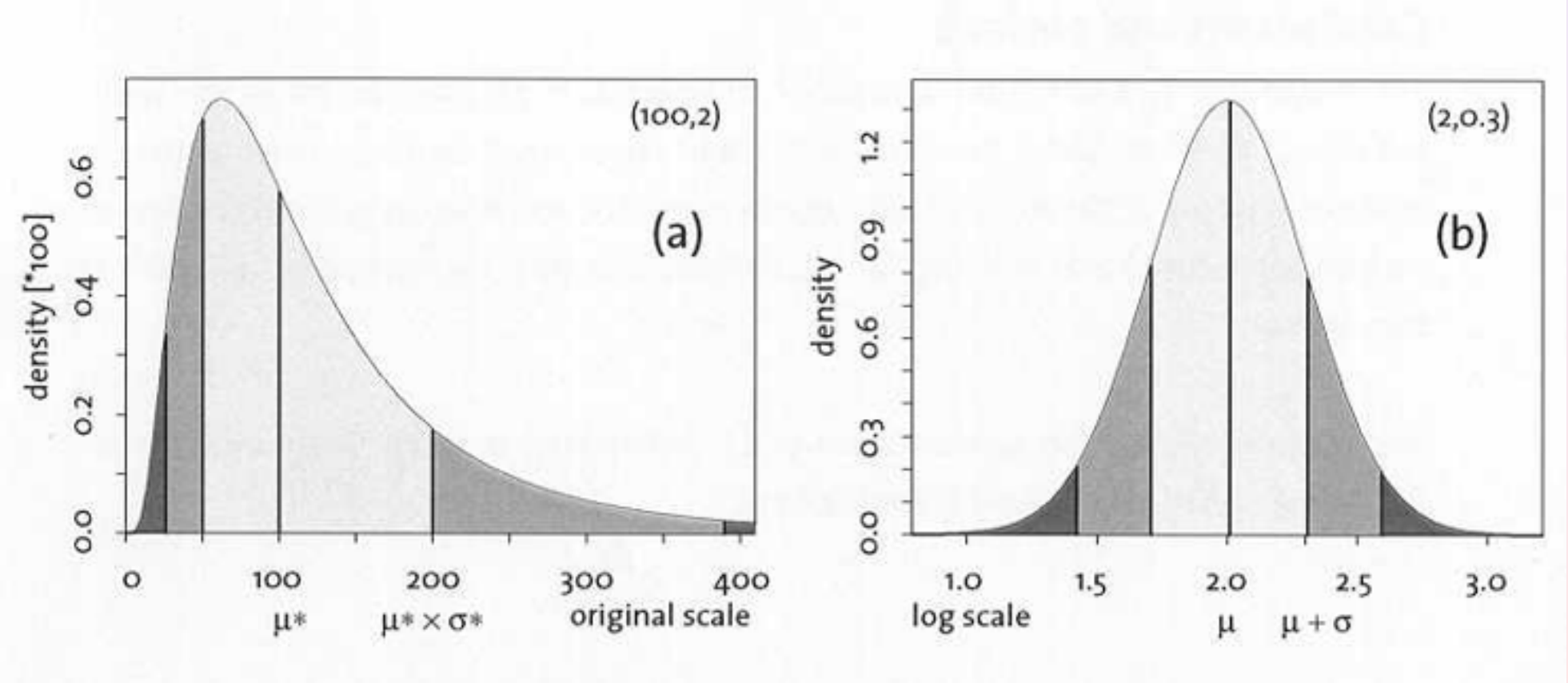
What matters?

- What are normal levels?
- How do they vary? (What constitutes *abnormal*?)



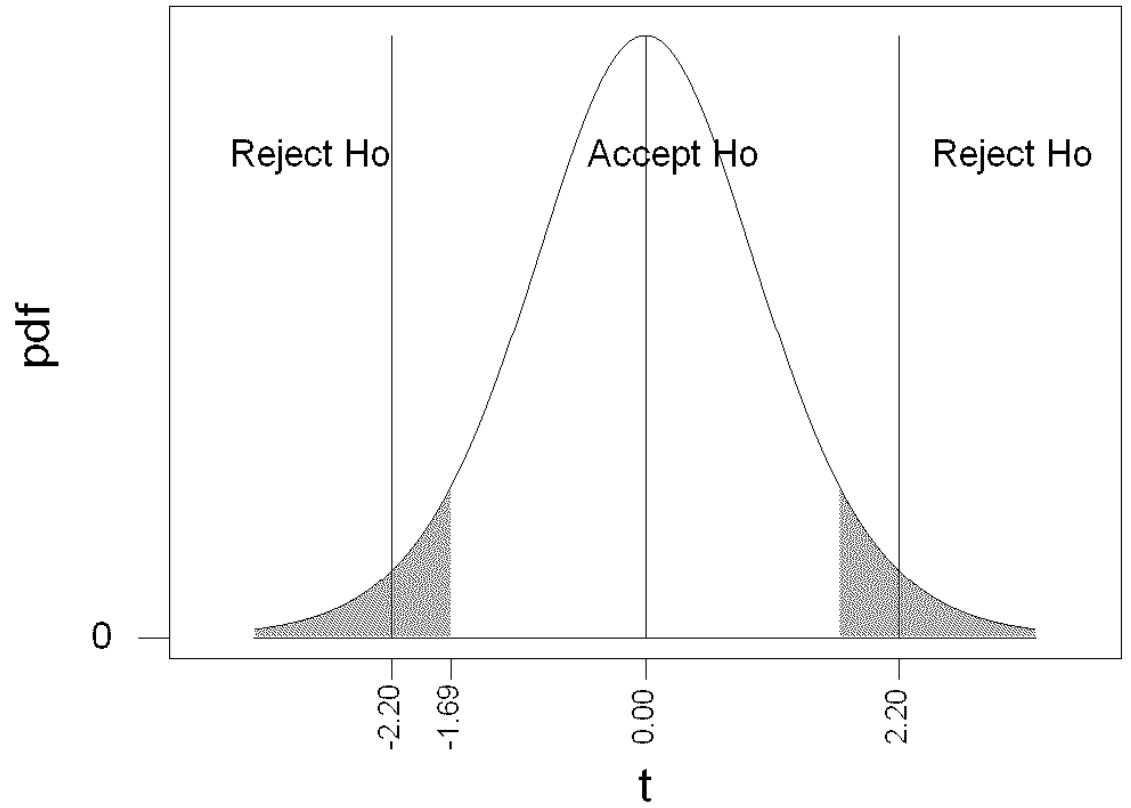
Variation isn't necessarily bell-shaped

For example, some things are log-normally distributed, such as income.



The key to making a decision

- Small p-value
- Something is exceedingly unlikely to have occurred by random chance. It must have a *different cause*.



Mathews and Malnar, December 1998

Work time: Pre- and Post-test Results

1. Are scores significantly better on the post test for class 1?
2. Do the pre-test scores for the two classes have significantly different variances?
3. Are average pre-test scores for the two classes significantly different?
4. How should we go about comparing the classes?