My name is Thordis Thorarinsdottir.

Why the weird last name?

My father’s first name is Thorarin. By Icelandic naming rules, my last name will thus be ‘Daugther of Thorarin’.

Teaching Assistants:

- Sections AA, AF: Amanda Allen
- Sections AC, AD: Patricia Pavlinac
- Sections AE, AH: Robert Branom

Our TAs are graduate students in statistically oriented fields here at the UW.

At the end of the course you should be able to:

- Understand and critique newspaper articles with statistical information
- Come up with ways to conduct experiments
- Draw conclusions from data
- Understand and critique analyses presented by others

Statistics literacy

There are copies on reserve at the Odegaard Library and the Mathematics Research Library.

Additional class notes will be posted online.

Great book, but somewhat unusual
- no formulas
- not focusing on computing
- emphasis on understanding

“'If you can't explain it simply, you don't understand it well enough'”
- Albert Einstein

Class website

http://www.stat.washington.edu/people/thordis/220/

Design of experiments (Chapter 1-2)

What are the different types of experiments we can perform? How do we optimally design our experiment?
David Hume on causation

In his *An Enquiry Concerning Human Understanding* (1748), David Hume said

‘We may define a cause to be an object followed by another, and where all the objects, similar to the first, are followed by objects similar to the second...

...where, if the first object had not been the second never had existed.’

Correlation and regression (Chapter 8-12)

How do we investigate and describe relationship between two variables?

Descriptive statistics (Chapter 3-5)

How do we describe the results of our experiment?

![Figure 3: Descriptive Statistics](http://statsSigma.com)

Probability (Chapter 13-14)

What are the chances!
Chance variability (Chapter 16-18)

Law of averages, expected value, standard error, normal approximation, box model.

That is likely a lot of new words. The essence is the following problem:

You took a sample and computed the average. That is a number. But it could have come out a bit differently. In fact, if you did the whole thing all over again, it would come out differently.

We call this phenomena randomness. How do we deal with randomness when reporting our findings?

Sampling (Chapter 19-21, 23)

How do we choose subjects for a survey/poll?
How many subjects do we need?

Test of significance (Chapter 26-27)

Are you familiar with the following formulas?

\[ \sum_{i=1}^{n} \frac{1}{2}n(n+1) \quad \int_{0}^{3} x^2 \, dx = \frac{1}{3}x^3 \bigg|_{0}^{3} \]

- If yes, please consider taking a more mathematically oriented course, such as STAT 311 or STAT 390.
- If no, don’t worry! We won’t use formulas like these.

BUT...

- Some elementary mathematics is needed.
- The course will not necessarily be easy for you; it will not be mathematically, but intellectually challenging.

Mathematical background