

# Stat/Biostat Project Classes: Expectations and Tips

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## Understanding your paper

- This is a good time to spend hours on this one formula
- Read other papers and appropriate reference books
- What does it mean for you to understand something?

## Implementing your paper

- Think about the data and how they were generated
- Try to reproduce all data analysis from your paper
- Design a set of simulation experiments
- Can you break the paper's method?

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# Your participation

- Keep explaining your paper to whoever will listen. We'll organize group discussions to help you. Explaining what part of the paper you don't understand often solves the problem
- Try to understand what everyone else is doing. There are many connections between your projects to be discovered
- Bug the instructor during and outside of the classroom
- Talk to other students during and outside of the classroom.
- Be critical of any advice by your peers and the instructors
- Don't trust derivations in your paper.

# Tips: writing

- Don't put off writing, start recording your thoughts from day 1.  
Think by writing
- You can write code, math, and documentation at the same time using Sweave
- Create an outline of your report, make a plan of what you want to accomplish
- Start a day with two hours of writing. It does not matter how much you actually write as long as you keep writing every day

- Don't put off coding, start numerical experimentations from day 1
- Start small. Reduce your problem to a ridiculously simple example and beat this example to death
- If math is hard, simulate
- Premature optimization is the root of all evil

- More on this later
- We'll be posting links on the discussion board(s)

## Side effects of taking Stat/Biostat Project classes may include:

- 1 Increased scientific curiosity
- 2 Involuntary wikipedia browsing
- 3 Clusterphobia
- 4 Markov dependency
- 5 Professorial self-confidence
- 6 Coding blues
- 7 Flashes of academic cynicism