

Investigation and Argument

- Solving a problem has two phases:
 - Investigation: Find a solution
 - Argument: Get the solution across to a “client”
- Too often, we only see the polished argument in a book
 - Hopefully this course helps you with investigation
- But you also have to be good at “argument”

Argument

- Bad argument:
 - Coercing through force of will or personality
 - Irrespective of correctness
- Good argument:
 - Clear presentation
 - Logical progression of steps
 - Enough and not too much
 - Successful

When Do You “Argue”

- Anytime you write
 - Email
 - Letters
 - Tests
 - Homework
 - Proposals
- Mechanisms:
 - Proofs
 - Essays, papers, books

Form vs. Content

- There is a lot of competition for our attention.
- Usually you can't get by with something that looks good but has no content.
- On the other hand, great content won't be noticed without at least reasonable form.
- If things look bad, people will assume that the content is bad – and maybe look for trouble.
 - Especially important when turning in schoolwork

Tests and Homework

- What is your goal?
 - Get the right answer
 - Convince the grader you got the right answer
- Formatting/display can help
 - Example: Points in a list instead of prose in a paragraph
- Readable handwriting matters!
- Never say “I think $2 + 2 = 4$ ”

Writing

- Speaking and writing skills make or break any professional career
 - Technical expertise is a bonus
- Good writing gives competitive edge over poor writing
- How to improve your technical writing:
 - Write a lot
 - Fix five problems
 - Identify and focus on your purpose

Purpose

- The purpose of writing is to convey something TO A READER
 - Your goal is to have an (appropriate) impact
 - Identify and focus on your audience
 - Tone matters. Example: email to a faculty member
- Keep your writing simple, clear

Reduce Cognitive Load

- The major goal of style is to reduce cognitive load on the reader
 - Simple notation
 - Clear layout
 - Syntactic consistency
 - Respect convention
 - Definitions near use
 - All things being equal, shorter is better
 - There can only be so many important things