CS 145 – Foundations of Computer Science

Professor Eric Aaron

Lecture – W F 1:30pm
Lab – F 3:30pm

Lecture Meeting Location: SP 105
Lab Meeting Location: SP 309

Instructor Info

• Professor Eric Aaron
  Website: http://www.cs.vassar.edu/~eaaron
  Office: SP 305
  Office Hours: M 2:00-3:00pm, Th 2:00-3:00pm, and by appointment (may change; see my website).
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  NB: The above email address is the best way to contact me
  Course Website: http://www.cs.vassar.edu/~cs145/

All Vassar faculty members are "responsible employees" regarding Title IX reporting.
I take Title IX seriously. Please talk with me for more information!
A tiny bit about the course

• Your textbook:
  – *Sets, Logic and Maths for Computing 2nd Edition*, by David Makinson
  – See the course website's *Some Useful Links* page for how to access the book for free(!) online

• A Scheme reference:
  – Scheme summary from Prof. Luke Hunsberger
  – also available from the course website’s *Some Useful Links* page

A tiny bit more about the course

• What we’ll cover
  – Mathematical foundations: Sets, relations, functions, …
  – Proofs: logic, induction, sets …
  – (Program correctness)
  – Programs: programming in Scheme, but (almost certainly) nothing you haven’t seen before
    • Emphasis on *functional programming* methods and design, in preparation for higher-level CS coursework and problem solving
    • See our *Some Useful Links* page for notes about the version of Scheme for this course, and the related DrScheme software

We love induction!!!
Proofs

- What makes proofs important to Computer Science?
  - Do we need *proofs*? What benefit do we get from them?

Here’s a proof (or “proof”) now!
It shows that 2=1, which is a somewhat non-intuitive result!

- Start with two non-zero numbers x and y, such that $x = y$
- Then, multiplying by x, we get: $x^2 = xy$
- Subtracting the same thing from both sides: $x^2 - y^2 = xy - y^2$
- Factoring, and dividing both sides by $(x-y)$, we get: $x + y = y$
- Since $x = y$, $x + y = 2y$, so we see that: $2y = y$
- Dividing both sides by y, we get: $2 = 1$

Is there a problem with this reasoning?

Assignments

- Reading: Ch. 1.1-1.4 in our textbook

- Also, email me from the account at which you’d want me to contact you
  - Include a sentence on what you’d like to get out of the course
  - … plus anything else you might like to tell me!
  - Also, in your email, let me know if you were able to access the course website and lecture notes without any difficulties

  - *Note: my preferred email is eaaron@cs.vassar.edu* (not eraaron@vassar.edu)
Business

• We will have a lecture Friday in our lab time

This week only: We will meet in this room, SP 105, on Friday!

• How many of you have previously worked with Racket? with Scheme?

• How many of you do not have a Vassar CS computer account?