Parallel Functional Programming

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Instructor

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Email me for appointments
primes = filterPrime [2..]
    where filterPrime (p:xs) =
        p : filterPrime [x | x <- xs, x `mod` p /= 0]
Prerequisites

Data structures (COMS W3134, W3137, or equivalent)

- You must be fluent in at least one programming language
  
  ![Java icon](image1)
  ![C icon](image2)
  ![Python icon](image3)

- You must dream about lists and trees
  
  ![List icon](image4)
  ![Tree icon](image5)

- You do not need prior experience in a functional programming language; that’s what this course is for
Assignments and Grading

75 %  Homework assignments
25 %  Final Project (alone or in pairs)

This is a coding† class
The homework must be your own code
The project may be done alone or in pair

†More precisely, mostly debugging, with a little bit of bugging
Collaboration

You may seek outside help, including from other students, on homework, but

- You must write all of your own code. No copying or copying-with-modification of any code. No looking at other student’s code as reference as you write your own.

- You must cite all people and resources you consulted. For example, you might add a comment like

```
{– I collaborated with Haskell Curry, Jim Backus, Alonzo Church, and Grace Hopper on this assignment, and consulted
 http://hackage.haskell.org/package/base-4.12.0.0/docs/Data-List.html
 https://stackoverflow.com/questions/211216
 http://www.cis.upenn.edu/~cis194/fall16/policies.html
–}
```

See also http://www.cs.columbia.edu/education/honesty/
Miran Lipovača.
Learn You a Haskell for Great Good!

http://learnyouahaskell.com/

Excellent introductory text. We will be following it for roughly the first half of the class.
Recommended Texts


https://simonmar.github.io/pages/pcph.html

Like its title says. Assumes a reasonable understanding of Haskell. We will be following it for the second half of the class.
Recommended Texts


http://book.realworldhaskell.org/

Also an introductory text on Haskell that starts at the beginning, it quickly focuses on practical, real-world aspects of writing Haskell programs, such as elaborate I/O, and interfacing with external libraries.
Recommended Texts

Paul Hudak.
The Haskell School of Expression.

http://www.cs.yale.edu/homes/hudak/SOE/

An idiosyncratic approach to learning Haskell based on multimedia (graphics, animation, and sound) ultimately leading to domain-specific languages.

Another introductory Haskell text, this one written by a professor from the University of Nottingham
Recommended Texts

Will Kurt.

https://www.manning.com/books/get-programming-with-haskell

Another introductory Haskell text, written more like a textbook