CS 695 Syllabus

7 September 2017

Welcome to CS 695, a *special topics* course on Functional Programming.

In this course, we will use the Haskell language to explore the functional programming paradigm. Functional programming makes the mathematical notion of a function a centerpiece of our programs. It also eliminates or reduces "side effects" that make programs difficult to reason about and parallelize. We will explore the basics of Haskell, recursion, list processing, patterns and guards, algebraic data types, type classes, combinators, applicative functors, and monads.

When: Thursdays 3–5:45pm
Where: H701
Credits: 3

Contact Info

Instructor: Prof. Christopher League, Ph.D.
Email: `christopher.league@liu.edu` — please include the course number (CS695) in the subject. I have several email addresses, but all messages end up in the same place, so **please use only one.**
Google Hangout: `cleague@gmail.com`
Office hours: Monday, Wednesday 2–3:50 PM, or make an appointment at `https://liucs.net/bookme`
Office phone: +1 718 488 1274
Office location: H-700, LIU Brooklyn

Resources

We will use several web resources:

- `https://liucs.net/cs695f17/` — notes, schedule, assignment handouts
- `http://www.gradechamp.com/` — grade reports
- `https://gitlab.liu.edu/` — assignment submission, discussion

There is no required textbook, but if you'd like a book to supplement or for reference, here are some suggestions:

- **Learn You a Haskell for Great Good!** by Miran Lipovača:
  `http://learnyouahaskell.com/` (buy or read online for free)

- **Haskell: The Craft of Functional Programming** by Simon Thompson:
  http://a.co/7CGcVt1 (3rd edition) or http://a.co/cmeUeWy (2nd edition; either
  one is helpful)
- **Programming in Haskell** by Graham Hutton: http://a.co/4WNZ9sZ (2nd edition)
  or http://a.co/dDf3vQ3 (1st; either one is helpful)

Requirements

There are a total of 1,000 points available, broken down as follows:

- There will be **12 weekly assignments**. The exact requirements and expectations for
  each will be posted to the course web site, but most involve some amount of pro-
  gramming. The assignments are worth **80 points each,** but I will drop the lowest
  two, so that only ten assignments count, for a total of **800 points.**
- There will be a midterm and final exam, worth **100 points each** for a total of **200
  points.**

On the 1,000-point scale, you can expect the following letter grades:

		≥ 870:	**B+**	≥ 770:	**C+**
≥ 930:	**A**	≥ 830:	**B**	≥ 700:	**C**
≥ 900:	**A−**	≥ 800:	**B−**	else:	**F**

In the end, I may choose to adjust the scale slightly to compensate for assignments
or questions that turned out to be trickier than I intended. Such adjustments would
never *lower* your grade from what is designated in the above table; if you achieve 930
points, you are guaranteed an **A**.

Policies

It is important to complete assignments **on time,** so you don't fall behind. Late work
will be graded as follows.

This formula specifies a *lateness factor* f that is multiplied by your earned score to
determine a late score. The variable h represents the number of hours the submission
is late.

$$f = \frac{8.5 - \log_2\left(\frac{h}{24}\right)}{10}$$

There will be no extra credit. Students usually ask for extra credit late in the
semester after they have already squandered their original opportunities. Be sure to
start your work early, so that we can detect and solve any problems before they can
affect your grade.

Plagiarism is the use or presentation of ideas, words, or work that is not one's own and that is not common knowledge, without granting credit to the originator. Plagiarism is a practice that is not only unacceptable, but which is to be condemned in the strongest terms possible on the basis of moral, educational and legal grounds. Under University policy, plagiarism may be punishable by a range of penalties from a failing grade in the assignment or course to dismissal from the School of Business, Public Administration and Information Sciences. All students are required to read the handbook on avoiding plagiarism by visiting https://liucs.net/u2

Cheating includes, but is not limited to the following: falsification of statements or data; listing sources that have not been used; having another individual write your paper or do your assignments; writing a paper or creating work for another student to use without proper attribution; purchase of paper or research work for one's submission as his/her own work; using written, verbal, or electronic or other sources of aid during an examination (except when expressly permitted by the instructor, depending on the nature of the examination) or knowingly providing such assistance to aid other students.

In a course with programming assignments, it is usually okay to work with and learn from other students to **some** extent, but what you submit in the end needs to be your own. The most reliable way to do that would be to set aside whatever code you created together, and then recreate it from scratch on your own.

Showing up on time to class is extremely important. If you must be absent or more than 5 minutes late, please try to notify me in advance. I will be keeping track of whether you are in class, and when you arrive. A few missed classes will not count against you, but habitual absence will significantly hurt your grade. Additionally, there will be no make-up quizzes. I do not distinguish between 'excused' and 'unexcused' absence. Unless you miss an *exam* due to a severe medical emergency, I don't want to see a doctor's note. If you do miss an exam, the make-up exam will be different – and probably *not* easier.

Long Island University seeks to provide **reasonable accommodations for all qualified persons with disabilities,** whether psychological, neurological, chronic medical, learning, sensory, or physical. The University will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to register with Student Support Services as early as possible and to provide faculty members with the formal communication for suitable accommodations. Visit Pratt 410, call 718 488 1044, or visit http://www.liu.edu/Brooklyn/SSS

I participate in the **LIU Safe Zone** program. Representatives of the program serve as contacts for individuals on campus with questions or concerns related to sexual orientation and gender identity, whether of self or of a friend or family member. The goal of the program is to promote a safe and free campus for all students. Safe Zone areas can be identified by a sticker with the LIU Safe Zone logo.

The **Family Educational Rights and Privacy Act** (FERPA) gives students control

over the disclosure of their educational records. During this course you may have the opportunity to create accounts or register with certain public online services. In these cases, you need not make any personally identifying information public. You may use a pseudonym or online handle, as long as you identify yourself to the instructor.

Schedule

The day-by-day schedule is shown below, including all deadlines.

Thu Sep 7 Meeting 1 at 3 pm.
Wed Sep 13 Assignment 1 due at 23:59.
Thu Sep 14 Meeting 2 at 3 pm.
Wed Sep 20 Assignment 2 due at 23:59.
Thu Sep 21 Meeting 3 at 3 pm.
Wed Sep 27 Assignment 3 due at 23:59.
Thu Sep 28 Meeting 4 at 3 pm.
Wed Oct 4 Assignment 4 due at 23:59.
Thu Oct 5 Meeting 5 at 3 pm.
Wed Oct 11 Assignment 5 due at 23:59.
Thu Oct 12 Meeting 6 at 3 pm.
Thu Oct 19 Meeting 7 at 3 pm.
Thu Oct 26 Meeting 8 at 3 pm. Midterm exam.
Wed Nov 1 Assignment 6 due at 23:59.
Thu Nov 2 Meeting 9 at 3 pm.
Wed Nov 8 Assignment 7 due at 23:59.
Thu Nov 9 Meeting 10 at 3 pm.
Wed Nov 15 Assignment 8 due at 23:59.
Thu Nov 16 Meeting 11 at 3 pm.
Wed Nov 29 Assignment 9 due at 23:59.
Thu Nov 30 Meeting 12 at 3 pm.
Thu Dec 7 Meeting 13 at 3 pm.
Fri Dec 8 Assignment 10 due at 23:59.
Thu Dec 14 Meeting 14 at 3 pm.
Fri Dec 15 Assignment 11 due at 23:59.
Wed Dec 20 Final exam due at 23:59.