

# CS 4000: Haskell Special Topics

## Fall 2018 Syllabus

Natasha Jarus

August 9, 2018

This course is an introduction to the Haskell programming language and to various imaginary constructs which enhance the experience of convincing yourself and a magic rock to hallucinate the same things.

### 1 Topics

Haskell programming; lambda calculus; type theory; syntax, semantics, and evaluation of programming languages; abstract algebra; and maybe some sort of “real-world” experience such as writing programs which you compile *and then execute*

### 2 Instructor

The course will be taught by **Natasha Jarus** and **Ricardo Morales**.

**Ricardo:**

**E-mail:** ricardom@mst.edu

**Office:** Computer Science 325

**Office Hours:** By appointment

**Natasha:**

**E-mail:** jarus@mst.edu

**Office:** Emerson Electric Company Hall 212 West

**Office Hours:** By appointment

### 3 Course Information

**Course Website:** <https://web.mst.edu/~nmjxv3/cs4000>

**Location:** ~ c y b e r s p a c e ~

**Time:** TBD

**Required Text:** *Haskell Programming from First Principles*, Christopher Allen

and Julie Moronuki, <http://haskellbook.com>, along with various supplemental reading materials we'll provide throughout the semester.

## 4 Schedule

| Week of  | Material   |
|----------|--|
| Aug. 20  | §1: Lambda Calculus<br>§2: Hello, Haskell!         |
| Aug. 27  | §3: Strings<br>§4: Basic Datatypes                 |
| Sept. 3  | §5: Types  |
| Sept. 10 | §6: Typeclasses                                    |
| Sept. 17 | §7: Functional Patterns                            |
| Sept. 24 | §8: Recursion<br>§9: Lists                         |
| Oct. 1   | §9: Lists<br>§10: Folding Lists                    |
| Oct. 8   | §11: Algebraic Datatypes                           |
| Oct. 15  | §12: Signaling Adversity<br>§13: Building Projects |
| Oct. 22  | §14: Building Projects<br>§15: Testing             |
| Oct. 29  | §16: Functor                                       |
| Nov. 6   | §17: Applicative                                   |
| Nov. 13  | §18: Monad   |
| Nov. 19  | <i>Thanksgiving break</i>                          |
| Nov. 26  | §19: Applying Structure                            |
| Dec. 3   | <i>Miscellaneous wrap-up; "final" "project"</i>    |

## 5 Grading

Exercises from the book (and possibly other exercises) will be assigned; you will be graded on completing and discussing the exercises. This will account for 90% of your grade.

The remaining 10% is a “final” “project” to help you reflect on the half of an elephant you will have eaten. We'll announce details of this later, but be thinking about something smallish you'd like to build!

## 6 Academic Dishonesty

Don't cheat! Why on earth would you cheat in a special topics course?

## 7 Disability Accommodations

If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation. Disability Support Services is located in 204 Norwood Hall. Their phone number is (573) 341-4211 and their email is [dss@mst.edu](mailto:dss@mst.edu).

## 8 Title IX

Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, Missouri S&T requires that all faculty and staff members report, to the Missouri S&T Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers, and homework exercises. Missouri S&T's Title IX Coordinator is Vice Chancellor Shenethia Manuel. Contact her directly ([manuel@mst.edu](mailto:manuel@mst.edu); (573) 341-4920; 113 Centennial Hall) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit <http://titleix.mst.edu>.

## 9 Classroom Egress Maps

Familiarize yourself with virtual classroom and building exits. In case of fire or excessive Gentoo evangelism, a judicious ^D may spare your very life! Remember: defenestration is a last resort; we recommend attempting with your computer first and yourself second, if necessary.