MATH 1051H-A: Lecture #01

Welcome Information

Contact Details

- **Me**: Dr. Wesley Burr
- **Email**: wesleyburr@trentu.ca (only for important, personal issues!)
- **Office**: GCS 335
- **Student Hours**: Wednesdays, 1515-1700 (3:15 - 5:00pm)
- **Workshop Assignments**: **very important** that you know your section!

Digital Tech & Links

I believe in the power of technology to make teaching and learning easier. So we're going to use quite a bit of it in this class.

- ▶ **Blackboard**: official grades, class-wide communications, paper assignment postings (1 assignment)
- ▶ **WeBWorK**: weekly assignments (digital)
- ▶ **Chat ('Mattermost')**: asking questions, communicating, sharing, talking to the TAs and me
- ▶ **rstudio.cloud**: learning to **do** statistics and data analysis (3 assignments)
- ▶ **Slides and Videos**: Blackboard and on math.trentu.ca

WeBWorK

- ▶ Linked from Blackboard
- ▶ Demo was done/will be done in workshop
- ▶ First assignment already live
- ▶ Multiple attempts (**varies** by question)
- ▶ **For the first assignment**, infinite attempts: figure out how to use the system!
- ▶ Assignments due throughout term

Chat Interface

- persistant
- multiple user
- replaces email
- where the TAs and professors will spend time outside of class & office hours
- http://math.trentu.ca:8065/math1051/

RStudio

The **R** programming language and interface is **the** language of statistics in the 21st century.

- ▶ MATH 1051H is not a traditional mathematics course
- ▶ Statistics blends mathematics, computer science, data analysis, data science, and philosophy
- ▶ You will be learning to do **data analysis** using **R** in this class
- ▶ http://rstudio.cloud/ (login with your Trent-Google account)

Course Overview

Now I'd like to go over the course with you.

- ▶ Lectures: 2 + 1 (Wednesday+Friday)
- ▶ Workshops: 1 hour, Thursdays/Fridays/Wednesdays
- ▶ our week runs Thursday to Wednesday, so everything will be based on a Wednesday 'start' date

Texts & Software

- OpenIntro Statistics (free, or $16)
- Book of R: excellent reference for shelf, not required (about $50)
- Calculator: anything goes, Casio FX-991 recommended (bookstore)
- R & RStudio: free!

The Textbook

The textbook we are using is an open-source CC-BY statistics textbook written by some excellent folks. The PDF is completely free if you want it, and I encourage all of you to at least get a copy of the **4th Edition**.

In addition, the bookstore still stocks the 3rd edition, and if you like dead trees and marking up your books, I encourage you to pick up a paper copy. It's only $16, so it won't break the bank.

Everything we do in the course will reference **both** versions - the 4th edition has some additional material added, but only went to print in July so we weren't able to stock it in time.

There is a link to the 4th Edition on Blackboard.

Extra Textbook

In addition, there is a book on the use of R and R programming available in the bookstore. It's a really, really good reference text for the future - most of you will end up using R in a later course (especially you BIOL and FRSC folks), and this is the kind of book you keep on your shelf for later. It's about $55 in the bookstore, or you can save $20 and get an electronic copy from Amazon.

Links:

- ▶ Book of R, paper, Amazon
- ▶ Book of R, Kindle edition, Amazon
- ▶ Book of R, paper, Trent Bookstore

Cheapest price seems to be the Amazon prices. I don't recommend renting the book - if you're going to bother having it at all, buy it and mark it up. Save it for the future. It's a really solid reference.

Things Worth Marks

- WeBWork2: 10%, lowest assignment dropped
- R Assignments: 3, 10% each (weeks 4, 7, 11, tentatively) - first one posted next week!
- Theory Written: 10% (week 12)
- Midterm: 15%
- Final Exam: 35%

WeBWorK (10%)

WeBWorK is an open-source homework system with automatically graded problems. It allows for some fun things like multiple attempts, and in-response math (e.g., you can say "My Answer is [2 * 2 + 2]" and it will recognize it).

▶ WeBWorK assignments will all be posted for **10 days**
▶ posted on Fridays, due two Mondays later
▶ designed so that everyone gets Wednesday -> Monday at a minimum to do the assignment
▶ you can work ahead a bit!
▶ all assignments are theoretically doable with only the textbook as a resource

R Assignments (30%, 3x10%)

The R assignments are designed to assess your learning of the material covered mostly in the workshops, and demonstrated in class. The first will be a simple syntax check, seeing if you've learned how to create documents and use basic features.

The second will be a probability-based assignment, asking you to **do** computations.

And finally, the third will be a data analysis **report**, with multiple "pathways" (options) for your data set. Professors from Forensics, Biology, and Chemistry have donated data sets to us for use on this assignment, and this third report will be like a lab report for one of your science courses: just done in R!

Written Assignment (10%)

You'll notice that there is no real written work due through the term, excepting the R assignments. We've found that in past years, students don't seem to really learn how to do the problems "by hand" (using a pencil, not a computer), and thus struggle on the final exam.

The written assignment is essentially designed as examination review and preparation: if you do well on the written assignment, you should be prepared for the computational and written parts of the final exam.

How to Get Help

- Chat: regular office hours, schedule posted next week
- TAs in Workshop: weekly
- Help Centre Hours (GCS): posted in week 3, dedicated MATH 1051H slots
- TA In-Person Office Hours: TBD
- My Student Hours: Wednesday, 3:15-5:00pm, GCS 335 - come by!
- read the (free!) textbook

What Didn't Make Sense?

Tell me what you didn't follow! What didn't make sense?

Q & A

If Time Allows . . .

- RStudio Quick Demo
- WeBWorK Quick Demo
- Mattermost Quick Demo