1051H (S61): Lecture #01

Wesley Burr

01/05/2020

Welcome Information

Contact Details

- **Me**: Dr. Wesley Burr
- **Email**: wesleyburr@trentu.ca (only for important, personal issues!)
- **Office**: GCS 335 (not that this matters …)
- **Student Hours**: Fridays, 1300-1500 (1:00 - 3:00pm)

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
- **WeBWorK**: assignments (digital)
- **Chat ('Slack')**: 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

WeBWorK

- Linked from Blackboard
- Posted demo in the Extra Videos
- 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 S61 term (10 in total)

Chat Interface

- persistant
- multiple user
- replaces email
- where the TAs and professors will spend time outside of class & office hours
- click the invite link in the Announcement on Blackboard

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
- click the invite link in the Announcement on Blackboard, login with Google, then bookmark the page

Course Overview

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

Posted Material

- lectures: about 2 hours per week, multiple videos, by topic
- workshops: two topics per week, 2+ videos, organized sequentially
- problem solving: at least one video per week
- extra topics: as often as needed

Texts & Software

- OpenIntro Statistics (4th edition: free PDF, or order on Amazon … if they'll ship!)
- Book of R: excellent reference for shelf, not required (about $50, digital copies available on Google Play Books)
- Calculator: anything goes, Casio FX-991 recommended
- R & RStudio: free! cloud!

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**.

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 (and digitally on Google Play Books, and elsewhere). 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 for a dead tree version, 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: 40%
- R Assignments: 3, 10% each (weeks 3, 5, 6, tentatively) - first one posted next week!
- Theory Written: 10% (week 6)
- Final Exam: 20%

WeBWorK (40%)

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 as long as I can
- you can work ahead a bit!
- all assignments are theoretically doable with only the textbook as a resource, but realistically will be helped by having the lectures and workshop material handy

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. Even if the final isn't the same as usual …

How to Get Help

- Chat: anytime!
- TA synchronous Zoom time: TBD
- My Student Hours: Friday, 1:00-3:00pm, in my personal Zoom chat (link on Blackboard and in Slack pins)
- read the (free!) textbook