
Math 114 Exam 2
Ethan D. Bolker
October 31, 2013

General guidelines

- Both the questions on this exam call for Excel work. You should type your answers in your spreadsheets - in complete sentences where that's appropriate.

You may use a blue book for scratch work; if you do, please turn it in.

- Don't use a calculator for arithmetic when you have Excel open on your desktop!
- Think about when to use a column chart, when to use a scatter plot.
- You have access to anything on your computer or the internet, class notes and other material and the text. I don't think I've asked questions that a web search will help you answer. You're free to try, of course, but don't waste time!
- After class you may improve your answers, and send me updated spreadsheets by midnight Sunday. *Work independently. Don't consult with friends or classmates or tutors.*

The exam is posted on the course web page at <http://www.cs.umb.edu/~eb/114/exam2/exam2.pdf>.

1. (10 points) Turning in your work. (These are not free points. To earn them you have to follow the instructions.)

- Make sure your name is in your spreadsheets!
- Format your spreadsheets carefully for printing, so that charts don't cross page boundaries.
- Print them in the lab. (No points off if the printer isn't working properly. That happens.)
- Send them to me as attachments in *one email to my gmail address*:

ebolker@gmail.com

with the subject line **Math 114 Exam 2 spreadsheets**.

- Send them to yourself, for safekeeping.
- You'll get a little extra credit for answering both questions in the same spreadsheet, using two worksheets.

2. (50 points) A Halloween question.

37076 IMDb users provided the following ratings for the 1931 movie *Frankenstein*. The data are from <http://www.imdb.com/title/tt0021884/ratings>; don't waste time looking there for answers.

Rating	Percentage
10	20.8
9	17.2
8	29.5
7	18.0
6	7.2
5	3.1
4	1.3
3	0.8
2	0.5
1	1.7

I've put this data into an Excel spreadsheet for you, at <http://www.cs.umb.edu/~eb/114/exam2/frankenstein.xlsx>.


- Draw a properly labelled chart displaying this data.
- Write your answers to these questions in the spreadsheet. Do your arithmetic there, not with a calculator!
 - (a) Find the mode of this distribution.
 - (b) How many people gave the mode rating?
 - (c) Find the median of this distribution.
 - (d) How many people gave the median rating?
 - (e) How many people gave a rating greater than the median?
 - (f) Find the mean of this distribution.
 - (g) How many people gave the mean rating?
 - (h) This question is in the spreadsheet.
- See the first question on the exam for instructions on turning in your work.


3. (40 points) Truck rental

I found the following quotes for a one day truck rental in Boston. The offer on the left is from U-Haul; the one on the right is U-Save. The trucks are slightly different, but either is OK for my job. I don't know how far I will have to drive. It might be as much as 150 miles.

14' truck

\$29.95
plus \$0.79/mile




(15' BOX TRUCK or similar)

QUANTITY	RATES
1 day(s)	\$ 87.38USD
Miles included: 50 (\$0.39 per MI thereafter)	

- (a) Use Excel to create a properly labelled chart showing how the cost for each truck depends on the number of miles I drive it. (Use the y axis for the cost and the x axis for the number of miles.)
- (b) Write a few sentences discussing which offer is the better deal.
- (c) See the first question on the exam for instructions on turning in your work.