Biomedical statistics

$$f(y) = \frac{\Gamma\left(\frac{v+1}{2}\right)}{\Gamma\left(\frac{v}{2}\right)} \frac{1}{\sqrt{v\pi}} \left(1 + \frac{x^2}{v}\right)^{-\frac{v+1}{2}}$$

I. Instructor information:

Instructor: Arndt F. Laemmerzahl
Office: Exploratory Hall, 1209

Phone: 993-5608 - please do **not** leave voice mail.
E-mail: alaemmer@gmu.edu **the best way of getting a hold of me**

Office hours: see web page (see below).

II. Books, manuals, etc.

Text: Statistics for the Life Sciences. Samuels, Witmer, and Schaffner.

The 5th edition is in the bookstore, but if you can, you should try to avoid it. The 2nd through 4th editions are preferred, and almost certainly cheaper (*do not get the first edition*).

(You can get a 2nd or 3rd edition for as little as $10.00 on Amazon).

Important: *regardless of which edition you use or where you get it, you will need it almost right away for homework assignments and other things. It is your responsibility to get the text on time (saying "I don't have my text yet" is not an excuse)!*

Comment: *Electronic versions are discouraged as you will not be allowed to use them on the exams.*

Calculator: You will need a calculator that has statistical functions. Chances are that if you own a "fancier" (e.g. scientific) calculator it will include these functions. If not, there are some available for less than $20.00 that will do (try, for example, the TI-30X IIS). You can use whatever brand you wish, but it is your responsibility to figure out how it works.

Class web page (w/ notes): http://mason.gmu.edu/~alaemmer/biomed/main.html

Note that I do not use blackboard much. Most of the information you need will be available through the above web page.

III. Exams:

Two exams, a midterm and a final. Each will be worth 32% of your grade.

Midterm: Thursday, Oct. 20th (we will use the entire class time for the exam).

Date is tentative. Depending on where we are it may move forward or back one or two days.

Final: Tuesday, Dec. 13th @ 1:30   (you will have two hours for the final).

Exam structure - you'll get more information about this as the exams get closer. Exams will consist of two parts:

      Part I - you'll need to know terms, definitions, & some simple formulas. This will be closed book.

      Part II - you will need to work some problems. This will be open book/notes.

            You will need to hand in part I before you get to see part II.

            You may use anything except devices with web access.

            But note the following:

                  You still need to make sure you know how your calculator works (no computers!).

                  You need to show all the steps in each problem. You will not get full credit if you just write down an answer your calculator spits out!

      The final exam is somewhat cumulative, but will concentrate on the material after the midterm.

IV. Interpretation assignment.

You will be required to read an article from a medical, pharmacological, or epidemiological journal, and then summarize this paying particular attention to the statistics used. Details will be provided in class. This will be worth 6%.

IV. Homework.

You will be given 6 homework assignments, worth 5% each.   Homework assignments will be given out on Tuesdays and are due at the *beginning* of class the 2nd Tuesday after they are handed out.

VI. Grading.

Your final grade will be based on your percent out of 100. The usual grading scale applies: 90 - 100 = A, 80 - 89 = B, 70 - 79 = C, 69 and below = F (there are no D's in a graduate course).

I will occasionally give (+) grades, but never (-) grades.

VII. Miscellaneous.

Honor code: if you are caught cheating, you will be taken to the honor committee. No arguments. The penalties are much more severe for graduate students.

Missed class: if for some reason class is canceled, then the following class will cover the material for the missed class. This is particularly important should an exam day be canceled for whatever reason (the exam will take place in our next scheduled class).

If you are having problems: please come and see me. I am here to help you learn this material *and* pass this class. I will do what I can to make sure that you make it successfully. Please don't wait too long if you are having difficulties.

Please try to be in class. You've probably heard it a million times already, but it's particularly true in this class. ***You will probably not do well if you are absent too often.***

You may be asked to do some work on a computer. If so, you'll be provided with step by step instructions.

Thanksgiving: we will *not* meet the Tuesday before Thanksgiving.

VIII. Approximate outline of course (subject to change - see also the lecture notes posted on the web page):

Introduction, descriptive statistics, random sampling
Graphical methods
Probability
Probability distributions
Sampling distributions
Confidence intervals
Two-sample tests (t-tests, MW tests, sign tests)
ANOVA & Kruskal-Wallace
Chi-square based tests (goodness of fit, contingency, odds ratios, relative risk)
Fisher's exact test
More complicated statistics (open ended, we'll see how things go)