

## **Midterm Exam STA 570**

### **Video Portion**

#### **25 points**

Please present the solutions to these problems in a video. You may choose to present them

- As a voice-over Power Point (or using another slide program)
- With a video of yourself speaking and using slides, a whiteboard, etc. You can use your phone, tablet, or computer webcam to record yourself.

You can either upload your video (.mp4 format or something that can easily be opened) to YouTube and attach the link to the assignment OR you attach the video as a submission. If you upload to YouTube, make sure you save it as unlisted or public (NOT private).

You will be graded on the following:

- (15 points) Your correct solution
- (5 points) The multimedia presentation is
  - clear and concise, with a very logical progression of ideas.
  - Includes ALL assignment requirements.
- (5 points) Multimedia element is
  - it is easy to hear/understand
  - The video is clear and any use of helps (board, paper, slides, etc.) are easy to read.

## Exam Problems

1. (5 points). Why do we not usually use 99.99% confidence intervals? Explain your reasoning as succinctly as possible (one or two sentences).
2. (10 points). Suppose that UK's Alumni Office wants to collect sample data to investigate whether UK graduates from the math department differ from UK graduates from the mechanical engineering department with regard to average annual salary.
  - a. What are the observational units?
  - b. What is the response variable?
  - c. Should you advise the alumni office to use random sampling to collect the data?
  - d. Should you advise the alumni office to use random assignment to collect the data?
  - e. What is the alternative hypothesis (or research question) to be tested? Describe in words (not symbols).