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Assignment #1
1/13/22

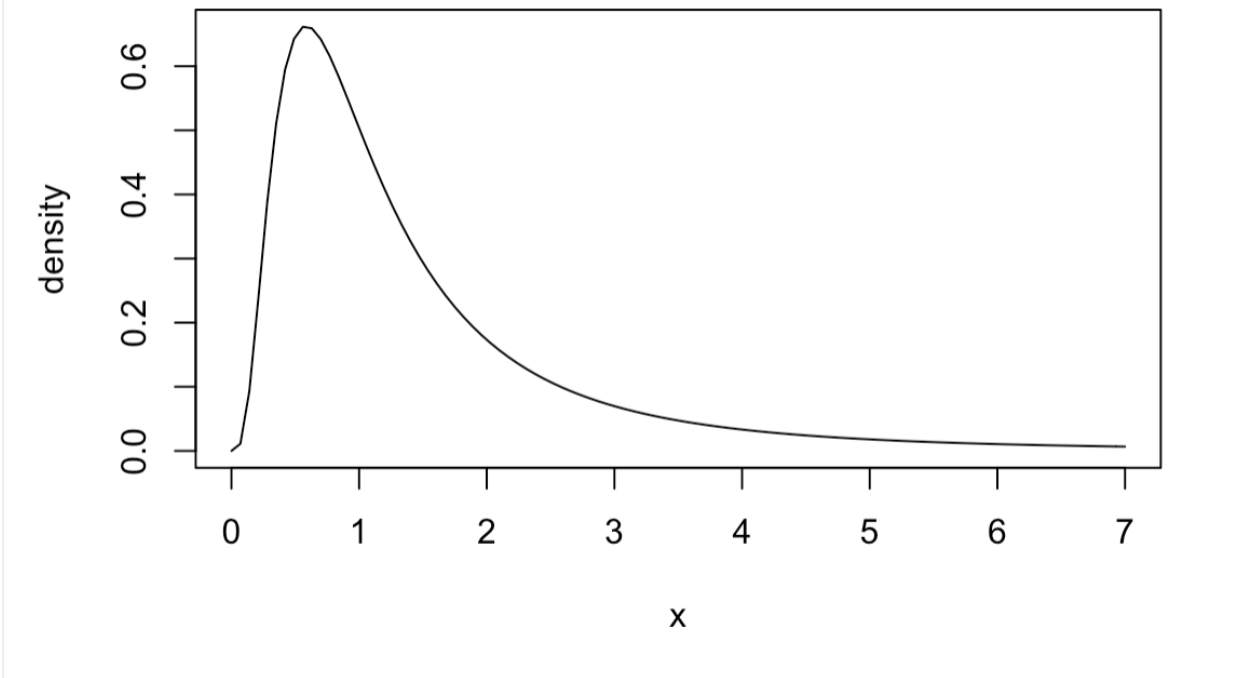
Introductions

1. I am and undergraduate student studying Public Health and minoring in statistics.
2. I took Biostatistics, Stat-516 Design of Experiments, Data-412 at AU. This semester I am also taking STAT-426 Data software. Design of Experiments was my highest-level statistics course.
3. Besides the classes listed above I have not taken any mathematics course at AU. In high school I took AP calc which I did very well in.
4. I would like to get a job in the public health field but be able to my statistical background as well. I would like to find a way to combine both interests into my career.
5. I worked at Yellowstone National Park last summer!

Part 2: More with PDFs: The F distribution

6. Plot the Density Curve

```
curve(df(x, df1 = 11, df2 = 5), from = 0, to = 7, ylab = "density")
```



7. Find the median value of F. (Hint: keep in mind which percentile the median corresponds to.) Report your answer as $F(p; df1, df2) = q$, filling in values for $p, df1, df2$ and q.

```
qf(.5, 11, 5)

# F(p;df1,df2)=q
# F(.5; 11, 5)= 1.08
# There is a 50% chance that an F(11, 5) value will be lower than q=1.08
```

```
[1] 1.079821
```

8. 4% of values will fall above which value of F? Report your as $F(p; df1, df2) = q$.

```
qf(.96, 11, 5)

# F(p;df1,df2)=q
# F(.96;11,5)= 5.25
# 4% of values will fall above q=5.25
```

```
[1] 5.249558
```

#9. Find $P(F(11,5) \leq 3)$.

```
# 9   Find P(F(11,5)≤3).
```{r}
pf(3,11,5)

# the probability that the value will be below 3 is 88%.
```
```

```
[1] 0.8824031
```

#10. Find $P(F(11,5) \geq 5.25)$.

```
pf(5.25, 11,5)
1-.96

# The probability that the value will fall above 5.25 is 4%
```

```
[1] 0.9600069
[1] 0.04
```