

## **Introduction**

why are we interested in this problem, what got you interested?  
what's the goal, what do we want to find out?  
previous work, is there something similar done before?  
what would certain outcomes mean? what's the impact?

## **Population/Sampling**

What population are we interested in?  
A smaller group of whole; inclusion/exclusion criteria? why?  
How will we get the sample? random or not, why?  
If random, will there be strata that we will sample from? Why?  
Be specific about the sampling plan, especially if random

## **Design/Treatments**

Control group or not? positive/negative?  
What are the treatments of interests? What specifically are they doing?  
How much? How often? How long? When?

## **Design/Response**

What are we measuring? What's the method of collection?  
What units? the measurements, number of measurements per person?  
When are these measurements taken (in connection with treatments, before/after/during?)  
Is the primary response a change?  
Do we expect certain kinds of values, range?  
Any issues with data collection that might come up? What will you do?

## **Randomization Plan**

What will be randomized? Are there strata? What units are we randomizing to?  
what randomization method will be used? How will they be assigned to each treatment?  
How will it be done (eg, software)?

## **Analysis Plan**

How will we summarize demographic/baseline information?  
What kind of analysis will we use? Why is that a good choice?  
What covariates might matter and how will we account for those?  
What kind of exploratory graphics will be done to understand the data?  
What are the assumptions of the tests? How will we check them? What if not met?  
What are the null/alternate hypotheses for the tests? what significance level? one or two-sided?  
How will we estimate the size of the effect that we're interested in, and put a confidence bound around it?

### **Sample Size**

What is the significance level, power? Why chosen? (0.05 and 80% are usual)

What difference is meaningful, that we want to be able to detect?

What was the standard deviation, and how was it estimated (pilot study?)

How was the sample size calculated (what software?)

### **Data Management**

A sample spreadsheet ready to be filled in, with columns and rows marked.

One row per what? No fancy formatting.

Explain in text the layout of the spreadsheet and how to fill it in.

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things to be considered when grading:

are all points included with enough clarity and detail

formal language, professional looking, grammar/editing

correctness of answers

organized, all fit together