This course is a 200 level Macaulay Honors Course (Seminar 3). The students are very hard working and are predominantly premed, prelaw or business majors. They have a stronger background in QR and basic math than most CUNY students. I have not assessed their ability specifically yet so I will have to check what level the students are comfortable with. The majority of them have worked with excel and all of the students have previously made movies that include some data presentations. Prior to this course module we will have read some primary literature and will have dissected the data in a series of tables and graphs.

To follow up on the theme of vaccine, I am working on a module that will look at the social benefits of vaccinations by having the students examine the historical numbers of measles cases, how they declined in once vaccinations were introduced and lastly what happens when communities don't vaccinate. Specifically, after introducing the general medical/biological mechanism by which vaccines generate immunity I will ask students to examine the impact of vaccines on surviving childhood. Students will be asked to work in groups of 4 and be given a disease for which there is currently a vaccine (polio, whooping cough, HPV, measles or flu). Students will then work in groups to identify key questions that the need to answer in order to explore the value of the vaccines. For example, what are the symptoms of the disease, who is vulnerable, how does the disease spread, how virulent is this disease (what percentage of people die), how effective has the vaccine been? Then they will be asked located the information on line (each student has a laptop as a required part of this course). Students will be asked to focus on numerical aspects the data they find. They should encounter percentages and risk in the form of tables and graphs. I will work with the students to convert these data sets into graphs that can be used to model future trends. I have already identified sources of these types information for most of the diseases so can assist each group as needed. Upon completing the information gathering, they will be asked to generate an infographic or short movie to communicate to the class their findings.

By the end of this module students should:

A) Knowledge and conceptual understanding: be able to identify relevant numerical data sources and to extract numerical data from bivariate line and bar graphs.

B) Thinking and other skills: utilize these data to generate graphs that effectively visually represent the data and extend models beyond the data presented.

C) Attitudes and values: will gain comfort and confidence in their mathematical skills and will be to utilize quantitative data and QR to make informed health decisions based on mindful risk/benefit assessments.