

# Final assignment

For the final assignment, we would like you to develop a fictional human genetics study design in groups. Each group will be assigned a different human trait to be studied. For this research project, you have been assigned an **unlimited budget** for a 3 years project. The different steps that your study needs to cover can be found below. Please make sure to apply the knowledge gathered throughout the course by making use of the teaching material that can be found on our [GitHub repository](#).

Please prepare a 20-minute oral presentation followed by a 10 minutes discussion. Additionally to the content of your work, both your presentation skills and slide layout will be considered in the evaluation. You can find the presentation guidelines from the American Society of Human Genetics [here](#). Please take them into account when preparing your slides.

## 1) Sample collection

Please develop a study design plan that takes your limited time into account. Here are some (not all) questions you should consider at this stage:

- Which genotype array are you going to use? Why?
- How are you gathering participants? Randomly or at a specific location?
- Are your participants from one or multiple ethnicities?

## 2) Statistical power enhancement

Is the data that you have collected large enough to draw conclusions from? If not, what can you do to increase the statistical power of your study?

## 3) Data analysis

Once the data has been collected, you want to start analyzing it. Here are some possible points you should think about before starting the analysis:

- What questions do you want to answer?
- What are the steps needed to address your question?
- Which results do you expect?
- Do you anticipate any challenges? If yes, how can you overcome them?

## 4) Post-analysis steps

You have come up with a research question/hypothesis and performed analyses in order to answer it. Now, you want to interpret your results. What can you do to improve your interpretation?

## 5) Next steps

You are very lucky and at the end of your study, you receive an extra 2 years to continue your research project. Now that time is less of an issue, how do you want to continue/improve your study design? Can you perform any further analysis to better support your previous results? Would you like to do anything differently than before? Think big and outside the box :)

## Group assignment

### Group 1 - Alzheimer's disease

Charoula Achilla  
Christina Emmanouil  
Elisavet Andronidou  
Maria Venetikidou  
Zoi Malami

### Group 2 - Type 2 diabetes

Anargyros Skoulakis  
Dimitrios Trygoniaris  
Maria Anagnostou  
Odysseas Sotirios Stergiou

### Group 3 - Height

Alexandros Simistiras  
Aristotelis Moulisanos  
Georgios Manios  
Konstantina Vaiti

### Group 4 - Osteoarthritis

Armen Ovsepian  
Christina Kolla  
Chrysa Filippopoulou  
Marianna Naki

### Group 5 - Blood pressure

Artemis Kotoula  
Dimos Gkitsakis  
Panagiotis Mantas  
Polymnia Gkoumplia