BIO782P Statistics for Bioinformaticians Assignment 2021

### Assessment 2

# Introduction

A scientist is interested in investigating the factor(s) which determine adequate sleep in humans. Your job is to produce a report which outlines the experimental and analytical approach that the scientist should take.

You are free to choose a laboratory experiment, observational or survey data, or any combination of these approaches. There is a budget limitation imposed by your employer and as a result you may recruit a maximum of 200 subjects for a lab study or 400 for an observational study. Explain what you would do, and how you would analyse the resulting data. Justify your chosen approach in terms of both statistical and non-statistical (e.g. time, cost, logistics) considerations. You can assume that the resulting observations can be analysed using standard parametric statistical methods.

To clarify, this question asks you to write a report about how to design and analyse the study. You do not have to write an essay on existing paradigms that determine adequate sleep. You do not have to present data or results.

# Report formatting

The word limit is 1200. Figure captions, tables, titles, references do not contribute to the word count.

The use of diagrams is encouraged. Non-original diagrams should be attributed.

Havard referencing should be used.

# Grading

You will be graded on:

* Clear description and explanation of the study design.
* Study design is sensible and realistic in the context of a basic understanding of the biology of human sleep.
* Justification of the design based on statistical (i.e. adhering to the principles of good experimental design) and non-statistical considerations.
* Appropriate choice and description of data analysis, given the study design.
* Well-organised writing, clear outline and appropriate use of references.