DPH101/ENV203 Assignment

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Due at 8:55 AM on 07 October 2019

Instructions

This assignment consists of three questions, some with sub-questions. There are 45 marks in total.

You must attempt all questions. All answers must be submitted on ICE in a *single* .Rmd file with a PDF output style using your student ID as file name. For example, *1234567890.Rmd*. Other file types will not be allowed. Other file names will not be allowed.

Question 1. 10 Marks

Swor and colleagues[1] looked at the effectiveness of cardiopulmonary resuscitation (CPR) training in people over 55 years old. They compared the skill retention rates of subjects in this age group who completed a course in traditional CPR instruction with those who received chest-compression only cardiopulmonary resuscitation (CC-CPR). Independent groups were tested three months after training. The table below shows the skill retention numbers in regard to overall competence as assessed by video ratings done by two video evaluators.

Table 1: Skill retention by intervention group.

Rated Overall Competent	CPR	CC-CPR	Total
Yes	12	15	27
No	15	14	29
Total	27	29	56

Find the following probabilities:

1. (1 mark) A randomly selected subject was enrolled in the CC-CPR class.
2. (1 mark) A randomly selected subject was rated competent.

3. (2 marks) A randomly selected subject was rated competent and was enrolled in the CPR course.

4. (3 marks) A randomly selected subject was rated competent or was enrolled in the CC-CPR course.

5. (3 marks) A randomly selected subject was rated competent given that they enrolled in the CC-CPR course.

Question 2. 15 Marks

A certain environmental protection agency received 25 applications for an opening in the water testing division. Of these applicants 10 are under 30 and 15 are over 30. Seventeen hold bachelor's degrees only, and eight have master's degrees. Of those under 30, six have master's degrees. If a selection from among these 25 applicants is made at random, what is the probability that a person over 30 *or* a person with a master's degree will be selected?

Question 3. 20 Marks

In a field trip to Japan by public health students, the probability that a randomly selected student will have been exposed to a certain allergen and experience a reaction to the allergen is 0.60. The probability is 0.80 that a student exposed to the allergen will experience an allergic reaction. If a subject is selected at random from this population, what is the probability that he or she will have been exposed to the allergen?

References

1. Swor R, Compton S, Vining F, Ososky Farr L, Kokko S, Pascual R, Jackson RE. A randomized controlled trial of chest compression only CPR for older adults-a pilot study. *Resuscitation* 2003;58(2):177-85.