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UNIVERSITY EXAMINATIONS 2023/2024

FIRST YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN POST GRADUCATE
EDUCATION

EMG 4102: EDUCATIONAL STATISTICS AND RESEARCH METHODS

DATE: APRIL 2024

TIME: 3 HOURS

INSTRUCTIONS: Answer Question ONE and any other THREE questions.

QUESTION ONE (30 MARKS)

AUDITOR INDEPENDENCE AND INTEGRITY IN ACCOUNTING FIRMS

As soon as Andrea got back to the flat after the afternoon's lectures, she rushed to her com-puter and switched it on. Would he have replied to her email yet? Five days she'd been waiting for a reply from Peter, a partner at a medium-sized, United Kingdom (UK) based audit firm. She had sent him a set of questions asking about the pressures he faced from companies to agree or 'sign off' their annual accounts when he was not entirely happy with their treatment of certain accounting items. And she wanted some answers. She couldn't fabricate her research material, but if she didn't get some more primary data soon, she couldn't see how her final-year research project was going to get the grade she needed to ensure that she graduated with a good degree.

The topic was certainly a good one, as her project tutor had confirmed. From her reading of auditing texts (for example: Gray and Manson, 2005; Millichamp, 2002; Porter *et al.*, 2003), she had established that the basic aim of an audit is to express an independent, professional opinion on the financial statements drawn up by, or on behalf of, the directors of a company. However, recent high-profile financial scandals involving companies with a previous record of unqualified or 'clean' audit reports suggested that auditors were not



keeping ‘creative account-ing’ under control. She wanted to know about the threats to their independence and integrity that auditors experienced while conducting a company audit. As a partner, Peter was an ideal source of information.

She had never met Peter. It was his suggestion to have an electronic conversation about her research into auditor independence and its importance for professional integrity; when he ticked the box on her questionnaire indicating he was willing to be interviewed, he’d scribbled by the side of it, ‘Why don’t we do this by email?’

She had originally mailed her questionnaire to each of the top 50 audit firms, a list of which she’d found while browsing through a copy of the weekly professional publication, *Accountancy Age* (2005), that her older, professionally qualified brother had lent her. The table gave the names of the top 50 UK auditing firms, ranked by total UK fee income. She’d then looked up the main postal address of each one on the Internet and sent one copy of her questionnaire to each address, asking for the questionnaire to be completed by one of their audit engagement partners. Since these people (or equivalent) are responsible for dealing with the board of directors, senior management and audit committee of the client company and will be a senior person with substantial experience of auditing, she considered them ideally qualified to answer the kinds of questions she was asking.

Five weeks later, Peter’s was one of only 11 responses she had received, far short of the 25 she had been hoping for. Most of those had arrived in the third week after the mailing and she hadn’t had anything in the post for nearly a week now. She was also disappointed that the answers to the closed questions showed a high degree of homogeneity and many of the write-in answers to the open questions didn’t say much at all. She’d even thought about throwing the questionnaires away and starting again, but it was getting too near the submission deadline to do that. As far as Andrea could see, the only useful thing to come out of the questionnaire survey was the two interview leads. At least it wasn’t going to take her long to analyse the questionnaire responses, such as they were, though it was a shame that she wouldn’t be able to show off the statistical skills she had learnt the previous year.

Given that only one other respondent had volunteered to be interviewed, she had jumped at the opportunity to get some more data for the research project by ‘e-interviewing’ Peter (Bampton and Cowton, 2002). With ethically sensitive issues there is always the problem of whether people are ‘telling like it is’ (Randall and Fernandes, 1991), but an interview seemed to offer the prospect of getting to the heart of ethical issues in a way that the questionnaire couldn’t do (Liedtka, 1992) – and the first round of questions and answers with



Peter had been encouraging. His replies had seemed to be really open and candid, and he had made some inter-esting remarks about the ‘real world’ of auditing, not least the pressure not to lose a particular audit engagement: push the client too hard, and the directors of the company could well be looking to appoint a new auditor next year. Then you could say goodbye to the audit fee and any additional consultancy services – and find yourself telling some of your staff that they were ‘no longer required’. His comments had brought home to her just how risky it could be to be over-zealous in audit work, to stand up to a client who was wanting to bend the financial reporting rules. She wanted and needed to know more and had immediately sent off the following open-ended questions, to which she was still awaiting a response:

- Which items in the accounts cause you the most problems as an auditor? Where are companies at their most ‘creative’ with the figures?
- Have you ever given an unqualified audit report which you didn’t feel happy about at the time or which you later regretted?
- Have any companies threatened you with the loss of an audit engagement? If so, how has this been communicated to you?
- What do you think should be done to ensure that auditors act more ethically? How can professional integrity be safeguarded?

Her ancient computer at last booted up and she logged onto her email account. She opened the inbox: still no reply from Peter. Her heart sank. She wondered what was happening. She worried that perhaps her follow-up questions had been too probing. After all, with so many big accounting scandals in recent years, the independence of auditors and their professional integrity were a big issue, and a sensitive one. Some of the excesses of ‘creative accounting’ were being blamed on auditors who weren’t courageous or scrupulous enough to stand up to corporate management. She could imagine why he might be reluctant to answer some of her questions. But then again, was she just being unduly pessimistic or even paranoid? Was he simply busy at the moment? A final-year student project wouldn’t be his top priority. He might even be on holiday. (At this point a picture formed in her mind of a luxury villa on a sun-drenched island and she began to dream of how she would love to be there now. But then the reality of her research project burst back in and she was back in her flat, staring at the computer screen.)

What should she do now? What could she do? Should she email him a reminder? That might seem impudent. Should she try telephoning him? That might seem pushy. Should she perhaps offer to visit him in his office? But it was 140 miles to the firm’s headquarters, a full day’s round trip, when she had so many



academic assignment deadlines to meet and a part-time job to hold down – not to mention the train fare to find out of her meagre financial resources. And, after all, it was his idea to do the interview by email. Perhaps it was best to leave it another day and hope that he would get back to her without any prompting. She turned off the computer and headed for the kitchen and the biscuits.

QUESTION ONE: 24 MARKS

- a. From what you know of her research design and approach, how appropriate do you consider Andrea’s approach to sampling to be? (4 marks)
- b. How would you assess her current position in relation to the number of responses and what advice could you give her about possible options for improving her chances of completing a reasonably successful project? (4 marks)
- c. What are the major benefits and drawbacks of seeking to interview via email? (4 marks)
- d. What are the practical issues that would need to be addressed when collecting data through an ‘e-interview’? (4 marks)
- e. How would you select a sample and research a sensitive topic like auditor independence and integrity? (4 marks)
- f. Discuss the importance of understanding educational statistics in modern educational settings. (4 marks)

QUESTION TWO: 12 MARKS

- a. Explain the role of descriptive and inferential statistics in educational research, (8marks)
- b. Suppose you have a bag containing 6 red balls, 4 blue balls, and 2 green balls. If one ball is randomly drawn from the bag, what is the probability of selecting a blue ball? (4 marks)

QUESTION THREE: 12 MARKS

Consider the following table representing the distribution of students' grades in a Mathematics class:

Grade	Number of Students
A	15
B	20
C	10



D	5
F	3

- Create a bar graph to visualize the distribution of grades. (3 marks)
- Discuss the insights that can be gained from the graph regarding the students' performance. (3 marks)

The following table shows the average test scores of students in Math and English over three semesters.

Semester	Math (Mean Score)	English (Mean Score)
Semester 1	85	78
Semester 2	88	80
Semester 3	90	82

- Create a line graph to visualize the trend in average test scores for Math and English over the three semesters. (3 marks)
- Analyze the trends depicted in the graph and discuss any notable patterns or changes. (3 marks)

QUESTION FOUR: 12 MARKS

- In a group of students, 60% like mathematics, 40% like physics, and 25% like both mathematics and physics. If a student is selected randomly from the group, what is the probability that the student likes physics given that the student already likes mathematics? (6 marks)
- The marks in a statistics class of a group of students are as follows: 65, 68, 70, 72, 74. Calculate the standard deviation of this performance. (6 marks)

QUESTION FIVE: 12 MARKS

The heights of adult males in a population follow a normal distribution with a mean of 70 inches and a standard deviation of 3 inches.

- What is the probability that a randomly selected adult male from this population has a height less than 65 inches? (4 marks)

- b. What is the probability that a randomly selected adult male from this population has a height between 68 inches and 74 inches? (4 marks)
- c. Discuss the concept of correlation in statistics, its significance, and methods for measuring it. (4 marks)

