EMORY UNIVERSITY

MSCR 533
FALL 2019

Mock Quiz

NAME:_____

INSTRUCTIONS:

1) **YOU MUST WORK ON YOUR OWN. You must not give aid to anyone else, and you must not receive aid from anyone except the exam supervisor.** You may not discuss any aspect of the quiz with anyone else. You are obliged to abide by the Student Honor and Conduct Code.

2) If the wording of a question seems ambiguous or incorrect, ask the quiz supervisor for clarification. He or she will attempt to correct any wording or typographical errors, but otherwise will answer only if it is possible to do so without revealing solutions to problems. The supervisor will not comment on anything that you have written or typed, and will not answer questions like "what does this question mean?", "am I on the right track?", "is this the right code?" or "can you help me find the error?"

3) This is an open-notes, open book quiz. You may use any materials posted on our Canvas site. You may, of course, use SAS software; no other statistical software may be used, unless the question specifically allows you to do so. You may use the help option within SAS and google searches for SAS help --no "live" online help resources though.

4) You have 1 hour and 50 minutes to work on this quiz.

There are 5 pages in this quiz, including this cover page.

Q.1 Identify four errors in the program below **that would produce error messages in the log window or would prevent SAS from producing any output.** Write your answers in the box on the right.

```
********************************;
*Fall 2018 MSCR533 Quiz;
*Question 1 faulty code
********************************;
DATA 500;
  VAR center$ id AgE;
  DATA LINES;
A 101 3
B 102 4
;

PROC FREQ;
  TABLES center$;
RUN;
```

```
Errors that would produce error
messages in the log window, or would
prevent SAS from producing output:

1.



2.



3.



4.
```

Q.2 In the space below, re-write the code in Q.1 so that it produces output and runs without errors. (Don't worry about having exactly the same number of asterisks as above!)

Q. 3 to 8: Download the program shown below from Canvas, open it in SAS and run it (be careful not to make any changes), and then answer the questions below.

```
*File: quiz_q3to8.sas;
LIBNAME h 'H:\';
DATA h.quiz_q3to8;
  INPUT subject_id$ section$ score;
  IF score >= 94    THEN course_grade = 'A ';
  IF 88 < score < 94 THEN course_grade = 'B+';
  DATALINES;
A1 1 44
A2 1 82
A3 1 99
B1 2 89
B2 2 91
C1 2 22
;
RUN;

PROC CONTENTS DATA=h.quiz_q3to8;
RUN;

PROC FREQ DATA=h.quiz_q3to8;
  TABLES subject_id section course_grade;
RUN;

PROC UNIVARIATE DATA=h.quiz_q3to8;
  CLASS section;
  VAR score;
  HISTOGRAM score;
RUN;
```

For questions 3-8: in the spaces provided, write 'T' if the answer is true, 'F' if the answer is false.

_____ Q.3 This program creates a permanent SAS data set.

_____ Q.4 The name of the data set created by this program is: h

_____ Q.5 The data set created by this program contains one numeric variable and three character variables.

_____ Q.6 The value of course_grade for the first observation (i.e., the observation which has subject_id = 'A1') will be missing.

_____ Q.7 The PROC UNIVARIATE data step will produce numerical descriptive statistics and histograms for the *score* variable both overall and stratified by *section*.

_____ Q.8 The program would produce the same results if the current PROC FREQ step had been replaced with the following (but the rest of the program remained unchanged):

```
PROC FREQ;
  TABLES subject_id section course_grade;
RUN;
```

Q.9 Researchers studied the effect of dietary supplementation of calcium on blood zinc levels. Blood zinc concentrations (mg/ml) were measured in pairs of rats. In each pair: (i) the rats came from the same litter, and (ii) one rat received a dietary supplement of calcium, and the other rat did not. The data (blood zinc levels) for the rats are stored in the Excel file 'quiz_zinc.xls'.

Note: clear your log window in SAS before proceeding.
Note: open a new program editor window in SAS before proceeding.

Your tasks: use the SAS import wizard and SAS programming statements to:

1) Import the data from Excel into a temporary SAS data set named 'zinc_imported'.
2) Examine the contents of the SAS data set created in (1).
3) Create a permanent SAS data set named 'zinc_xxxxx_yyyyy' (substitute your first name for xxxxx and your last name for yyyyy) in H:\, which contains the data from the 'zinc_imported' data set from (1), and in which you have
   - added a variable named 'Diff' where, for each pair of rats, Diff is equal to the difference in zinc concentration for the calcium-treated rat and the untreated rat.
   - added a variable named 'Sex', which is equal to Male for the pairs 1 to 10, and Female for the remaining pairs (pairs 1-10 were male rats, pairs 11-20 were female).
4) Perform descriptive analyses necessary to complete the information on page 5.

There are a variety of ways to accomplish items 3 and 4 using SAS. The more efficient your approach, the more credit you will earn. Your final SAS program should be compact and precise, without unnecessary data or proc steps or statements.

If you cannot perform the tasks in 3 and 4 using SAS, you may perform them in the original Excel spreadsheet(s) prior to step (1) above, for (substantially) reduced credit; if you do this, you must include comments in your SAS program indicating that you have done so.

Include your name in a header comment. Add descriptive comments to your SAS program that explain each step in your code.

Before **you leave class:**
   - Fill in all of the information on page 5.
   - Save your <u>program</u> (not the log window, or the output) in a file named Quiz_xxxxx_yyyyy.sas (where xxxxx is your first name and yyyyy is your last name).
   - Clear all log window messages (click on the log window and then click Edit > Clear All) and then run your final program for steps 2-4 in its entirety. Save your error- and warning-free log (not the program or the output) as Quiz_xxxxx_yyyyy.log (where xxxxx is your first name and yyyyy is your last name).
   - Email Quiz_xxxxx_yyyyy.sas and Quiz_xxxxx_yyyyy.log to Azhar (anizam@emory.edu)

Q. 9 (Continued)

Complete Table 1. **Round values to two decimal places**:

Table 1: Blood Zinc Levels in Calcium-Treated and Untreated Rats (n=20 pairs)

	Blood Zinc Level (mg/ml)		
	Calcium-Treated	No Calcium	Diff
Mean:	_____	_____	_____
Standard Deviation:	_____	_____	_____
Median:	_____	_____	_____
1st & 3rd quartiles	_____ _____	_____ _____	_____ _____
Skewness:	_____	_____	_____
Kurtosis:	_____	_____	_____