**Note these are code examples only, not full answers to text questions.**

**Example 1.4, page 15**

/\*

\* DePaul, CSC324 / CSC423, Bill Qualls

\* Mendenhall and Sincich, Example 1.4, page 15

\* Used in chapter 1 to demonstrate histogram.

\*/

libname Perm 'D:\BQ\School\DePaul\csc423\text\Data\_sets\SAS\Exercises&Examples';

\* Print first ten rows ;

title "Sample of EPAGAS dataset";

**proc** **print** data=perm.EPAGAS (obs=**10**);

**run**;

\* Create histogram ;

title "Histogram for EPAGAS";

ods noproctitle;

**proc** **univariate** data=perm.EPAGAS noprint;

var MPG;

histogram MPG / endpoints = **30** to **44** by **1**;

inset n min max mean std / position=ne;

**run**;

title;

**In R…**

# DePaul, CSC324 / CSC423, Bill Qualls

# Mendenhall and Sincich, Example 1.4, page 15

# Used in chapter 1 to demonstrate histogram.

# read stored R dataset EPAGAS

# note forward slashes!

# note R is case-sensitive!

load("D:/BQ/School/DePaul/csc423/text/Data\_sets/R/R/Exercises&Examples/EPAGAS.Rdata")

# print first ten rows

head(EPAGAS, 10)

# create histogram

hist(EPAGAS$MPG, xlab="Miles per gallon", main="Histogram of EPAGAS", breaks=15)

**Example 1.7, page 21**

/\*

\* DePaul, CSC324 / CSC423, Bill Qualls

\* Mendenhall and Sincich, Example 1.7, page 21

\* Used in chapter 1 to demonstrate descriptive statistics.

\*/

libname Perm 'D:\BQ\School\DePaul\csc423\text\Data\_sets\SAS\Exercises&Examples';

\* Print first ten rows ;

title "Sample of NOSHOWS dataset";

**proc** **print** data=perm.NOSHOWS (obs=**10**);

**run**;

\* Create descriptive statistics ;

title "Descriptive Statistics for NOSHOWS";

**proc** **means** data=perm.NOSHOWS;

var NOSHOWS;

**run**;

title;

\* Create descriptive statistics ;

title "Descriptive Statistics for NOSHOWS";

**proc** **means** data=perm.NOSHOWS n mean stddev stderr clm maxdec=**3**;

var NOSHOWS;

**run**;

title;

**In R…**

# DePaul, CSC324 / CSC423, Bill Qualls

# Mendenhall and Sincich, Example 1.7, page 21

# Used in chapter 1 to demonstrate descriptive statistics.

# read stored R dataset NOSHOWS

# note forward slashes!

# note R is case-sensitive!

load("D:/BQ/School/DePaul/csc423/text/Data\_sets/R/R/Exercises&Examples/NOSHOWS.Rdata")

# print first ten rows

head(NOSHOWS, 10)

# show descriptive statistics (method 1)

summary(NOSHOWS$NoShows)

# show descriptive statistics (method 2)

# requires library psych

library(psych)

describe(NOSHOWS$NoShows)

# create 95% c.i.

n <- nrow(NOSHOWS)

xbar <- mean(NOSHOWS$NoShows)

s <- sd(NOSHOWS$NoShows)

semean <- s / sqrt(n)

t <- qt(0.975, df=n-1)

moe <- t \* semean

left <- xbar - moe

right <- xbar + moe

left

right

# or this...

ci <- xbar+c(-1,1)\*moe

ci

# t.test will also give c.i.

# H0: mu = 0 vs. H1: mu ne 0

# Reminder: Reject H0 when p-value < alpha

t.test(NOSHOWS$NoShows)

**Example 1.17, page 54**

This problem is really about T.O.H. but I used it for C.I. instead.

/\*

\* DePaul, CSC324 / CSC423, Bill Qualls

\* Mendenhall and Sincich, Example 1.17, page 54

\* Used in chapter 1 to demonstrate c.i. for difference between two means.

\*/

libname Perm 'D:\BQ\School\DePaul\csc423\text\Data\_sets\SAS\Exercises&Examples';

\* Print first twenty rows ;

title "Sample of READING dataset";

**proc** **print** data=perm.READING (obs=**20**);

**run**;

\* Create descriptive statistics ;

title "Descriptive Statistics for READING";

**proc** **means** data=perm.READING maxdec=**4**;

class METHOD;

var SCORE;

**run**;

title;

\* Data must be ordered by "class" field used in ttest ;

**proc** **sort** data=perm.READING out=work.sorted;

by METHOD;

**run**;

\* class gives difference between groups. alpha=.05 gives 95% C.I. ;

title "TTEST for READING";

**proc** **ttest** data=work.sorted alpha=**0.05**;

class METHOD;

var SCORE;

**run**;

**In R…**

# DePaul, CSC324 / CSC423, Bill Qualls

# Mendenhall and Sincich, Example 1.17, page 54

# Used in chapter 1 to demonstrate c.i. for difference between two means.

# read stored R dataset READING

# note forward slashes!

# note R is case-sensitive!

load("D:/BQ/School/DePaul/csc423/text/Data\_sets/R/R/Exercises&Examples/READING.Rdata")

# print first ten rows

head(READING, 10)

# show column names only

names(READING)

# WARNING: You don't see it but METHOD has trailing blanks!

# These can be revealed by using the paste() function.

paste(READING$METHOD)

# White space is significant in comparisons! Hence the trim function.

READING$METHOD=gsub(" ", "", READING$METHOD)

paste(READING$METHOD)

# Get reading SCORE by METHOD

new <- subset(READING, METHOD=="NEW")$SCORE

std <- subset(READING, METHOD=="STD")$SCORE

# two-sample t-test, not paired, assume equal population variance

# H0: mu1 - mu2 = 0 vs. H1: mu1 - m2 ne 0

# Reminder: Reject H0 when p-value < alpha

# t.test will also give c.i.

t.test(new, std, paired=FALSE, var.equal=TRUE)