BIOS668 HW5

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*Honor Code: On my honor, I have neither given nor received unauthorized aid on this assignment. x Sara O’Brien*

Q1.1. PROC Power produced a sample size calculation of 592 for this test of superiority.

SAS Output:

Table

Description automatically generated

Q1.2 PROC Power produced a sample size calculation of 478 for this test of equivalence.

SAS Output:

Table

Description automatically generated

Q2.1. Simulations of size 1000 validated the sample size of 592 calculated in Q1.1, with the power being equal to 0.8040~0.80 and type 1 error, or alpha level, being equal to 0.0580~0.05. These values closely match our desired power and alpha level.

SAS Output:

*Checking power:*

Table

Description automatically generated with medium confidence

*Checking type I error:*

Table

Description automatically generated with low confidence

Q2.2. Simulations of size 1000 validated the sample size of 478 calculated in Q1.2, with the power being equal to 0.7910~0.80 and type 1 error, or alpha level, being equal to 0.0460~0.05. These values closely match our desired power and alpha level.

SAS Output:

*Checking power:*

Table

Description automatically generated with low confidence

*Checking type I error:*

Table

Description automatically generated

Q3.1. The mean (std) sample size for treatment arm A is 30.14 (3.957). The mean (std) sample size for treatment arm B is 29.86 (3.957). The mean (std) difference in sample size across treatment arms for 100 trials is 0.28 (7.914).

SAS Output:

Table

Description automatically generated

Q3.2. The mean (std) sample size for treatment arm A is 15.65 (2.931) The mean (std) sample size for treatment arm B is 24.35 (2.931). The mean (std) difference in sample size across treatment arms for 100 trials is -8.7 (5.863).

Table

Description automatically generated with medium confidence