Course Description: Biostatistics for Life Scientists GS14 1612

Course Director: Christophe P. Ribelayga
Lecturers: Stephen L. Mills and John Magnotti

Offering: Two semester hours. Spring annually.

Course outline: Biostatistics for life scientists – 32 lecture/exam days

Class meets on Tuesday and Thursday 9-10 am

Week 1
Jan 3 Introduction to probability and statistics
Jan 5 Introduction to R

Week 2
Jan 10 Probability (order, permutations, combinations), review
Jan 12 Probability (order, permutations, combinations), write R code

Week 3
Jan 17 Hypothesis testing, binomial probabilities, non-parametric tests, review
Jan 19 Hypothesis testing, binomial probabilities, non-parametric tests, hands-on exercises

Week 4
Jan 24 Chi-squared tests, review
Jan 26 Chi-squared tests, hands-on exercise

Week 5
Jan 31 REVIEW
Feb 2 TEST 1

Week 6
Feb 7 Central tendency, the normal distribution, z-test, t-test, review
Feb 9 Central tendency, the normal distribution, z-test, t-test, hands-on exercises

Week 7
Feb 14 Analysis of variance (simple + multiple factors), review
Feb 16 Analysis of variance (simple + multiple factors), hands-on exercises

Week 8
Feb 21 Analysis of variance, repeated measures, review
Feb 23 Analysis of variance, repeated measures, hands-on exercises

Week 9
Feb 28 Confidence interval and power of test, review
Mar 2 Confidence interval and power of test, hands-on exercises

Week 10
Mar 7 REVIEW
Mar 9 TEST 2

Week 11
SPRING BREAK

Week 12
Mar 21 Advanced topics in data analysis: Poisson analysis, review
Mar 23 Advanced topics in data analysis: Poisson analysis, hands-on exercises

Week 13
Mar 28 Advanced topics in data analysis: Linear regression, review
Mar 30 Advanced topics in data analysis: Linear regression, hands-on exercises

Week 14
April 4 Advanced topics in data analysis: Multiple regression, review
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<td>Advanced topics in data analysis: Multiple regression, hands-on exercises</td>
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<td>April 11</td>
<td>Advanced topics in data analysis: Clustering, review</td>
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<td><strong>Week 16</strong></td>
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<td>April 18</td>
<td>Advanced topics in data analysis: Multidimensional analyses, review</td>
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<td>April 20</td>
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