Department of Statistics & Operations Research

King Saud University

First Semester 1444-1445

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**SYLLABUS STAT 109 – Biostatistics**

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| **Week** | **Title** |
| **W1** | Introduction to bio-statistics. |
| **W2** | Types of data and graphical representation |
| **W3** | Descriptive statistics: measures of Central tendency- mean, median, mode (Excluding stem plot percentiles). |
| **W4** | Measures of dispersion-range, standard deviation, coefficient of variation (Excluding stem plot percentiles). |
| **W5** | Calculating measures from an ungrouped frequency table (Excluding stem plot percentiles). |
| **W6** | Basic probability, conditional probability, concept of independence, sensitivity, specificity  |
| **W7** | Bayes theorem for predictive probabilities |
| **W8** | Some discrete probability distributions: cumulative probability  |
| **W9** | Binomial and Poisson -their mean and variance (Excluding the use of binomial and Poisson tables). |
| **First Midterm exam****(chapters 1, 2, 3)** |
| **W10** | Continuous probability distributions: Normal distribution  |
| **W11** | Standard normal distribution and t-distributions  |
| **W12** | Sampling with and without replacement, sampling distribution of one and two sample means and one and two proportions (Excluding sampling without replacement). |
| **W13** | Statistical inference: Point and interval estimation, Type of errors, Concept of P-value (Excluding variances not equal). |
| **Second Midterm exam (chapters 4, 5)** |
| **W14**  | Testing hypothesis about one and two samples means and proportions including paired data – different cases under normality. ( Excluding variances not equal). |
| **Final Exam chapters 6, 7**  |

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|  **Lectures** | **Course Delivery**  |
| First term exam.: 30 Marks (1.5 hours) | Grading Policy |
| Second term exam: 30 Marks (1.5 hours) |
| Final exam :40 Marks (2 hours) |
| Foundations of Biostatistics by  Islam, M. Ataharul, Al-Shiha, Abdullah | Text Book |

**Exams:**

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| Exams |  Topics covered | Date | Time | Mark |
| First Midterm  | Chapters 1,2,3 |  |  | 30 |
| Second Midterm | Chapters 4,5 |  |  | 30 |
| Final exam | Chapters 6,7 |  |  | 40 |

**Attendance:**

Students missing more than 25% of the total class hours won't be allowed to write the final exam.