Department of Statistics & Operation Research-King Saud University

First Semester

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**SYLLABUS STAT 109 – Biostatistics**

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| **Week** | **Title** |
| **W1**  | Introduction to Bio-Statistics, (1.1-1.4). |
| **W2**  | Types of data and graphical representation, (1.1-1.4). |
| **W3**  | Descriptive statistics: Measures of Central tendency- Mean, median, mode (2.1 -2 .6 Excluding stem plot percentiles). |
| **W4**  | Measures of dispersion-Range, standard deviation, coefficient of variation (2.1 - 2.6 Excluding stem plot percentiles). |
| **W5**  | Calculating Measures from an ungrouped frequency table (2.1 - 2.6 Excluding stem plot percentiles). |
| **W6**  | Basic probability. Conditional probability, concept of independence, sensitivity, specificity, (3.1 -3.6). |
| **W7**  | Bayes Theorem for predictive probabilities. (3.1-3.6). |
| **W8**  | Some discrete probability distributions: cumulative probability (4.1-4.4). |
| **First Term Exam**  |
| **W9**  | Binomial, and Poisson -their mean and variance (4.1 - 4.4 Excluding the use of binomial and Poisson tables). |
| **W10**  | Continuous probability distributions: Normal distribution (4.5 - 4.8). |
| **W11**  | Standard normal distribution and t distributions (4.5-4.8). |
| **W12**  | Sampling with and without replacement, sampling distribution of one and two sample means and one and two proportions. (5.1 - 5.7 Excluding sampling without replacement). |
| **Second Term Exam**  |
| **W13**  | Statistical inference: Point and interval estimation, Type of errors, Concept of P-value (6.2 - 6.6, 7.1 - 7.6 Excluding variances not equal page 181-182). |
| **W14**  | Testing hypothesis about one and two samples means and proportions including paired data – different cases under normality. (6.2 -6.6, 7.1 - 7.6, Excluding variances not equal page 181-182). |
| **Final Exam**  |

**Grading Policy:** Test No. 1: 30 Marks (1.5 hours), Test No. 2: 30 Marks (1.5 hours), Final Test: 40 Marks (2 hours**). No** other marks will be counted in the total.

**Homework and exam policy:** Collaboration on homework assignments is encouraged. You may consult outside reference materials, other students, the instructor, or anyone else. There is one restriction: you must write, type, or otherwise record your answers yourself, alone, so that your homework reflects your understanding. No late homework or make-up exams without prior approval; penalties may apply.

**Text Book:** *Biostatistics: Basic Concepts and Methodology for the Health Sciences by Wayne W. Daniel*. [9th ed.] Books available from university book store below SAMBA bank. The book costs 70 Riyals for students.