

**UNIVERSITY OF SOUTH FLORIDA
COLLEGE OF PUBLIC HEALTH
DEPARTMENT OF EPIDEMIOLOGY AND BIostatISTICS**

**Syllabus
Biostatistics I
PHC 6050 3 Credits**

Course Schedule:

Learning Units	Readings and exercises
Overview of course (presentation) Introduction to statistics (presentation) 01- Populations and samples (learning unit)	Chapter 1 in Blair and Taylor Chapter 2 (through 2.3.2) EXERCISES 1.1-1.4; 1.5-1.10, 2.1(a-d), 2.3-2.4
02 - Parameters and statistics (learning unit) 03 - Descriptive and inferential statistics (presentation) 04 - Scales of measurement (learning unit) 05 - Summation (learning unit)	OPTIONAL EXERCISES 1.11-1.16
06 - Distributions and tables (learning unit) 07 - Graphs (learning unit) 08 - Measures of central tendency (l. unit) 09 - Measures of variability (l. unit) 10 - Measures of relative position (l. unit) 11 - Measures of distributional shape (l. unit)	Chapter 2 (2.4 through end of chapter, <i>omit</i> 2.5.4) EXERCISES 2.1 (e-g), 2.2 (a-e), 2.4-2.7 OPTIONAL EXERCISES 2.10-2.13; S2 on textbook
12 - Probability (presentation) 13 - Calculating probability (l. unit) 14 - Contingency and joint probability Tables (l. unit) 15 - Independence and dependence (l. unit) 16 - Dependence and causation (presentation) 17 - Assessing test performance (l. unit) 18 - Risk ratios and odds ratios (l. unit) 19 - Normal distribution (presentation) 20 - Z-scores and the normal curve (l. unit)	Chapter 3 (<i>omit</i> 3.3.7) EXERCISES 3.1 to 3.12, 3.13-3.15 OPTIONAL EXERCISES 3.21; S3 on
21 - Sampling distributions and the central limit theorem (presentation) 22 - The binomial distribution (l. unit) 23 - Making inferences (learning unit) 24 - Hypothesis testing (learning unit)	Chapter 4 (4.1-4.3.2) EXERCISES 4.1 to 4.7

Examination 1 – covers Units 1-24

25 - One mean-Z-test (learning unit)	Chapter 4 (4.3.3, 4.3.7)
26 - Type I and Type II errors (l. unit)	EXERCISES 4.8, 4.16
27 - Statistical power (learning unit)	Chapter 4 (4.3.4-4.3.5)
28 - Statistical power-practical issues (presentation)	EXERCISES 4.9, 4.13-4.15
29 - One mean t-test (learning unit)	4.17-4.21
30 - One sample tests for a proportion (learning unit)	
31 - Equivalence testing (presentation)	Chapter 4 (4.3.6, 4.4-4.6)
32 - Confidence intervals (learning unit)	EXERCISES 4.10, 4.22-4.24,
33 - Relation between hypothesis testing and confidence intervals (presentation)	4.27-4.28
34 - Paired samples t-test (learning unit)	Chapter 5 (5.1-5.3)
35 - McNemar's Test	Sections 5.2.2 and 5.3.2 <i>are optional reading</i>
	EXERCISES 5.1, 5.3, 5.7, 5.8, 5.12
	OPTIONAL EXERCISES 5.13

Examination 2 -- covers Units 25-35

36 - Independent samples t-test (learning unit)	Chapter 6 (6.1, 6.2.1, 6.2.3,
37 - Internal and external validity (learning unit)	6.2.4, 6.4.1, 6.4.2, 6.4.4,
38 - Liberal and conservative tests (l. unit)	6.5.1, 6.5.2, 6.5.4)
39 - Testing for risk and odds ratios (l. unit)	EXERCISES 6.1, 6.3, 6.8, 6.10, 6.24-6.28
	OPTIONAL EXERCISES 6.11, 6.13, 6.29-6.30
40 - One-way analysis of variance (l. unit)	Chapter 7(7.1-7.2, 7.4)
41 - Multiple comparison procedures (learning unit)	EXERCISES 7.1, 7.5, 7.7-7.9
42 - Bonferroni adjustment (learning unit)	
43 - Pearson product-moment correlation (learning unit)	Chapter 8
44 - Chi-square test for independence (learning unit)	EXERCISES 8.2, 8.3, 8.11-8.14
45 - Simple linear regression (learning unit)	Chapter 9 (9.1-9.2)
46 - Non-parametric tests and permutation methods (learning unit)	Chapter 10 (10.1, 10.2, 10.3.3). The remainder of Chapter 10 is optional reading.
	EXERCISES 9.1, 9.4, 9.6 10.2, 10.9
	OPTIONAL EXERCISE 9.8

Examination 3 -- covers Units 36-46