

# STA 3024 – Intro to Stats II

## Fall 2005

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**Office Hours:** TBA

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### **Textbooks:**

Introduction to the Practice of Statistics, 4<sup>th</sup>Ed., by D. Moore and G. McCabe (and Print Supplement, Chapters 14,15)

Introduction to Biostatistics, by L.Winner (on class websiteP)

**Course Description:** STA 3024 gives an overview of statistical methods used to determine associations among sets of variables. We will typically classify variables as numeric or categorical, as well as normally distributed or non-normal. Statistical methods used to make inferences among populations based on sample data will be covered for commonly encountered experimental and observational datasets.

### **Topics Covered:**

- Comparing 2 Population Means**
- Comparing 2 Population Proportions**
- Comparing  $I > 2$  Population Means**
- Analysis of 2-Way Contingency Tables**
- Linear and Nonlinear Regression**
- Logistic Regression**
- 2-Factor Analysis of Variance**

## **Grading:**

- Homework assignments will be assigned, but not taken up.
- 3 in-class (2 hour) exams will be given (each counting 33% of final grade)
- Exam 1: Thursday, September 22
- Exam 2: Thursday, October 27
- Exam 3: Thursday, December 1

## **Topics/Sections/Problems:**

### **I. Comparing 2 Population Means:**

#### **a) Independent Samples/Normal Data (2-sample t-test)**

**I TPS: Section 7.2 Problems: 53,56,57,65,66,67,71,75,79,81,107,109,112,117,121**

**IB: Sections 3.1.1,3.4.1,4.1 , Problems: 12,13,16b,22**

#### **b) Independent Samples/Non-normal Data (Wilcoxon Rank-sum test)**

**I TPS: Section 14.1 Problems: 3,5,6bc,12,13,14**

**IB: Section 3.4.1 Problems: 14**

#### **c) Dependent Samples/Normal Data (Paired t-test)**

**I TPS: Section 7.1 Problems: 29,30,31**

**IB: Sections 3.4.2,4.2 Problems: 15,16a,17b,18,19,22**

#### **d) Dependent Samples/Non-normal Data (Wilcoxon Signed-Rank Test)**

**I TPS: Section 14.2 Problems: 12,13,14**

**IB: Section 3.4.2 Problems: 17a,20**

### **II. Comparing 2 Population Proportions:**

#### **a) Large/Independent Samples (z-test)**

**I TPS: Section 8.2 Problems: 33,34,35,36,37,38,39,40,41,42,43,47,49,59,69,73,77,79**

**b) Relative Risk and Odds Ratio**

**IB: Sections 5.1.1,5.1.2 Problems: 23,24,25,26**

**c) Small/Independent Samples (Fisher's exact test)**

**IB: Section 5.1.5 Problems: 27**

**d) Large/Dependent Samples (McNemar's Test)**

**IB: Section 5.1.6 Problems: 28**

**III. Comparing  $I > 2$  Population Means**

**a) Independent Samples/Normal Data (ANOVA F-test/Multiple Comparisons)**

**ITPS: Sections 12.1,12.2 Problems: 1-5,7,9,11-14,32-35,43,45**

**IB: Section 6.1.1 Problems: 35,36,37**

**b) Independent Samples/Non-normal Data (Kruskal-Wallis Test)**

**ITPS: Section 14.3 Problems: 22,23cd,24,26**

**IB: Section 6.1.2 Problems: 38**

**c) Dependent Samples/Normal Data (ANOVA F-test/Multiple Comparisons)**

**IB: Section 6.2.1 Problems: 39**

**d) Dependent Samples/Non-normal Data (Friedman's Test)**

**IB: Section 6.2.2 Problems: 40**

**IV. Analysis of 2-Way Contingency Tables**

**ITP: Chapter 9 Problems: 1,7,8,9,10,11,12,17,19,28,31,33,37**

**IB: Section 5.2 Problems: 29,30**