**Course Syllabus**

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| **2023 CNU International Summer Session** |

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| **Course Title** | | | **Introduction to Biostatistics (Medical Statistics)** | | | | | | | | | | | | | | |
| **Course Type** | | |  | | | | | | **Credits**  **(hours)** | | | | 3 (3hrs/day) | | | | |
| **Department** | | | Health Science | | | | | | **Professor** | | | | Sharon Welburn | | | | |
| **Classification**  **(year in school)** | | |  | | | | | | **Course Code** | | | |  | | | | |
| **Class room** | | |  | | | | | | **E-mail** | | | | welburn\_sharon@columbusstate.edu | | | | |
| **Prerequisite(s)** | | | NA | | | | | | | | | | | | | | |
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| **Course objectives** | | | The course objective is to introduce bio-statistical methods and its underlying principles of “how to perform” and “how to interpret” the statistical analysis in decision making of public health problems. | | | | | | | | | | | | | | |
| **Course Summary** | | | This course will provide a foundation for statistical methods used in public health practice and research. Emphasis will be on application of appropriate methods and interpretation of results. Examples and problems from public health settings will be included. Statistical software will be used to analyze data. Topics covered will include methods of summarizing data and estimation and hypothesis testing techniques, including the t-test, the chi-square test, the analysis of variance, correlation analysis, and linear regression. | | | | | | | | | | | | | | |
| **Teaching Methods** | | | **Teaching Methods** | | | | | | | | | | | | | | |
| Lecture | Presentation/Discussion | | | | Problem Based Learning | | | Project Based Learning | | | | Experiment/ Practices | | |
| 30% | 20% | | | | 20% | | | 20% | | | | 10% | | |
| We will discuss the practical uses of statistics in the study of biology and health. These will include lecture presentations of how to calculate many of these important descriptive and analytic calculations by hand as well as presentations in SAS On Demand on how to analyze these data using computer software. Students will be placed in groups of 2 or 3 and given a dataset at the start of the semester, which will be analyzed throughout the semester using SAS On Demand, giving students hands-on experience of data analysis. From these analyses, student groups will write up a brief research report on their findings and present their findings in a Power point presentation in class. Analysis techniques discussed in class will be the focus on this Final project. | | | | | | | | | | | | | | |
| **Grading** | | | Mid-Term | Final | | Final Group Project | | | | Practical / Coursework | | In-class Quizzes | | **Total** | | | |
| **20%** | **30%** | | **20%** | | | | **Homework Exercises (20%)** | | **10%** | | **100%** | | | |
| ※ Pursuant Section 28 of the Guidelines on Class Management, grading methods can be adjusted for the physically impaired.  ※ Under Section 29 of the University Regulations on Academic Affairs, a student automatically fails a course in case of failure to attend more than 3/4 classes. (More than four(4) times absence) | | | | | | | | | | | | | | |
| **Accommodations for Handicapped** | | | - Visually impaired: provision of course related materials in audio, note taking helper, permission to record the lecture  - Audibly impaired: provision of course related materials in visual, note taking helper, permission to have e-learning lectures in sign language or shorthand  - Physically or mentally challenged: provision of course related materials, note taking helper, permission to record the lecture   * Any other requests that are considered necessary: provision of assisted   ingress and egress to the classrooms and other supports | | | | | | | | | | | | | | |
| **Textbooks & References** | | | | | | | | | | | | | | | | | |
| Category | Title | | | | Author | | | | | | Publisher | | | | | | Year of publication |
| Main textbook | Basic Biostatistics - Statistics for Public Health Practice | | | | B. Burt Gerstman | | | | | | Jones & Bartlett Learning | | | | | | 2015 |
| Reference | The Little SAS Book | | | | Lora D. Delwiche & Susan J. Slaughter | | | | | | SAS Institute Inc | | | | | | 2019 |
| **Daily Course Schedule** | | | | | | | | | | | | | |
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| **Day**  **(3hurs)** | **Lecture Topic** | **Hours per day** | **Method of Instruction** | **Class Materials & Assignments** |
| 1 | Course Introduction:  Measurement & Types of Study | Introduction to SAS On Demand | 3 | Power point presentation and SAS On Demand Instruction | SAS Practice Assignment  Quiz 1 |
| 2 | Descriptive Summaries of Data | 3 | Power point presentation and SAS On Demand Instruction | Homework from the Textbook Exercise  Quiz 2 |
| 3 | Probability Concepts & Binomial Distributions | 3 | Power point presentation and SAS On Demand Instruction | Homework from the Textbook Exercise  Quiz 3 |
| 4 | Normal Distributions & Statistic Inference | 3 | Power point presentation | Homework from the Textbook Exercise  Quiz 4 |
| 5 | Estimation & Hypothesis Testing | 3 | Power point presentation | Homework from the Textbook Exercise  Quiz 5 |
| 6 | Comparing Independent Means & Inference About Proportions | 3 | Power point presentation and SAS On Demand Instruction | Quiz 6 |
| 7 | Comparing Two Proportions & Cross-Tabulated Counts | 3 | Power point presentation and SAS On Demand Instruction | Homework from the Textbook Exercise  Quiz 7 |
| 8 | Midterm Exam | 3 |  |  |
| 9 | ANOVA | 3 | Power point presentation and SAS On Demand Instruction | Homework from the Textbook Exercise  Quiz 8 |
| 10 | Scatter plots & Correlation | 3 | Power point presentation and SAS On Demand Instruction | Quiz 9 |
| 11 | Simple Regression | 3 | Power point presentation and SAS On Demand Instruction | Homework from the Textbook Exercise |
| 12 | Multiple Regression | 3 | Power point presentation and SAS On Demand Instruction | Homework from the Textbook Exercise  Quiz 10 |
| 13 | Measures of Association, Confounding, & Interactions | 3 | Power point presentation and SAS On Demand Instruction | Homework from the Textbook Exercise  Quiz 11 |
| 14 | Student Presentation of Data Analysis | 3 |  |  |
| 15 | Final Exam | 3 |  |  |

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| **References** |
| Please describe the daily course contents, teaching methods, assignments, and student evaluation methods.  Example of Evaluation and Grading Procedure (Total of 100)   * Individual Quiz (10 Points = 10 Points X 10 Times) – Marked in Schedule. 11 Total Quizzes are given, and the lowest quiz will be dropped. Quizzes will be given at the end of each lecture and will be based on the lecture for the day. * Homework (20 Points = 2 Points X 10 Times) – Marked in Schedule. Homework will be based on Textbook Exercises or on the Final Project. * Final Group Project (20 Points = 10 Points Brief Research Report + 10 Points Presentation) – The final project will consist of completion of a Brief Research Report and an in-class Presentation on the findings from the data that was analyzed. * Examinations (50 Points = 20 Point Midterm + 30 Point Final) |