COURSE SYLLABUS

**Course Prefix/Number**: PHC 5990

**Course Title**: Biostatistics for Public Health

**Course Credit Hours**: 3

**Prerequisite**: STA2023 or equivalent course. See UWF Catalog for details.

**Instructor Name and Contact Information**
Raid Amin, Ph.D
Mathematics and Statistics
Building 4 Room 336
Email: ramin@uwf.edu
Phone: (850) 474-3014


**Rationale**: This course is needed to meet identified gaps in the competencies for the MPH students. The current course STA5176: Biostatistics while being advanced in its coverage of statistics, it may not address a significant portion of the competencies prescribed for CEPH accredited schools and programs of public health and therefore is lacking in preparing graduates majoring in MPH. Most competencies prescribed for CEPH depend on material that is based on STA2023. The new course will review the basic material, while adding to it a rich flavor of Public Health language and issues.

**Course Description**
This is a second course in statistics for students in the Public Health and Allied Health. The topics include descriptive statistics, probability, standard probability distributions, sampling distributions, point and confidence interval estimation, hypothesis testing, power and sample size estimation, one and two-sample parametric and non-parametric methods for analyzing continuous or discrete data, simple linear regression, and other statistical methods. The SAS statistical software package will be taught in this class for data management, statistical analyses. This is a fully online course. STA2023 or equivalent is a pre-requisite for this course (see UWF Catalog). It is important to have a good understanding of inferential statistics, such as confidence intervals and tests of hypotheses (for two samples).

**Student Learning Objectives**: Upon completion of the course, students will have knowledge on:

1. Describe the roles biostatistics serves in the discipline of public health.
2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.
3. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.
4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.
5. Apply descriptive techniques commonly used to summarize public health data.
7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.
8. Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.
9. Interpret results of statistical analyses found in public health studies.
10. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.

**Course Requirements and Policies:** The instructor will provide information within each learning module of this course.

- Regular logins and active participation are needed for the successful completion of this course.
- Students will learn about the lessons through readings, discussions, and individual performance.
- Participants will be encouraged to participate in asynchronous online discussions as described in each lesson. E-mail and threaded discussion will be used to facilitate class discussion.
- Generally speaking, the course will include reading assignments, problem solving, LOTS and LOTS of computations! You will be asked to post your questions and suggestions to a discussion forum, and you will submit all assignments to a dropbox folder designed for this purpose.
- **You will be using the Statistical Analysis System (SAS)** throughout the course. I will teach all steps needed to run SAS programs. You will be responsible for running programs and for understanding the printouts. This is a major part of this course. Practice is a must! Have a memory stick handy for this course. Save on it all your SAS programs with the corresponding output files so that you will keep documentation for future use. Many SAS assignments will depend on previous SAS programs so it is saving you plenty of time if you have access to your older SAS programs.
- There will be no make-up exams given. Discuss with me any scheduling problems very early in the semester and definitely before exam days. If a student has an approval from me to miss an exam, then the final exam will have more weight for this student. For example, if a student is excused from taking Exam 1, then his/her Final will have weight 40% (15% + 25%).
- All exams will be taken proctored. I will explain to you in detail what this means.
  (a) You choose an educational unit (college, university, military educational unit, high school principal’s office) to proctor your exams.
  (b) The proctor will fill out a UWF Proctor Form, and you will submit to me the signed form in a timely fashion. There will be a drop box in e-learning for such filled proctor form.
  (c) I will email your proctors the exam a day before it is given.
  (d) The exam dates will be fixed for one day on which all students will take the exam.
  (e) The proctor will scan your completed exam, and then email me the scanned exam.

**Frequently Asked Questions**

- What does a “proctored exam” mean? The exam will be taken at an approved educational center that you choose, and you will be proctored (overlooked) as you take the exam. There may be a fee included, depending on the center doing the proctoring. You must submit to the appropriate drop box on e-learning the proctor information. UWF has a special form for proctor information with guidelines.
May I use my relative or spouse as my proctor for exams? ➔ No, this would be unacceptable. Always start by looking for a junior college close to where you live.

I am an officer in the US military. How would I take proctored exams? ➔ A higher ranked officer may be used as your proctor. Many military bases have educational centers that can be used for proctoring.

I am stationed in Japan at a U.S. military base. The time difference is considerable. How will I be able to attend lecture live and when will I take my proctored exams? ➔ I am flexible in such situations, and we will work out how you will go through this online course. Exams can be taken at times that are manageable for you at your local time.

How will I submit my exams to you? ➔ I will send your proctor the exam in a timely fashion, and she/he will email me back your completed exam after scanning it at the educational center where you will be taking the exam.

Do I have multiple options when to take the proctored exam? ➔ All exams will be taken on specific days that I will announce in class and on e-learning. There is flexibility at what time on a given day you can take the exam, as long as the proctor will be able to email me back your scanned completed exam on the same day.

I travel a lot, and I need to take my exams on weekends. Is this possible? ➔ No, this is not possible since all students must take the exams on the same day.

How do I send you my assignments when I complete them? ➔ You will be able to write up each assignment with pencil and paper, followed by scanning it to a single PDF file with maximum file size 2MB. Then you will submit that (single PDF) file to the appropriate drop box on e-learning.

Can you give me some tips on how to scan the assignments? ➔ There will be a file posted on e-learning on how to scan assignments.

Must I participate in e-learning discussions? ➔ Your active participation on e-learning with questions and answers and tips for assignments is extremely valuable to all students and to your better student learning of the course material.

May I send you emails on the course material throughout the semester? ➔ I have many students enrolled in my classes each semester, and it is most efficient to limit emails to personal issues that you do not want to post on e-learning. Whatever I address on e-learning will stay posted for an entire semester, and all students will benefit from my input there.

May I drop the course any time during the semester? ➔ Always check with the announced UWF deadlines for dropping courses without penalties. There is no “late W” assigned by me. It is your responsibility to keep track of deadlines.

No automatic late withdrawal from this course with a 'W' is possible after the deadline. Refer to the UWF Catalog for details.

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**Grading Evaluation:** The course grade will be evaluated as follows:

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<tr>
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<td>Homework</td>
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<td>Final Exam</td>
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<td><strong>Total</strong></td>
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Topics Covered:

- Chapter 2: Descriptive Statistics.
- Chapter 3: Probability.
- Chapter 4: Sections 4.8, 4.9 (The Binomial Distribution), Sections 4.10-4.12 (The Poisson Distribution).
- Chapter 5: Sections 5.1-5.5 (The Normal Distribution).
- Chapter 6: Estimation (sampling distribution, confidence intervals with normal distribution, binomial distribution, Poisson distribution).
- Chapter 7: Hypothesis Testing: One-Sample Inference.
- Chapter 8: Hypothesis Testing: Two-Sample Inference.
- Chapter 9: Nonparametric Methods.
- Chapter 11: Regression and Correlation11.1-11.7
- Chapter 12: Analysis of Variance (Multisample Inference).

The Course:

Unlike some other online courses in which the course material is presented as “modules” with printed materials being posted online that student must study, this course will be taught via posted recorded lectures. It is as if you would be sitting a class room taking notes. You will be able to see my writing, and you will be able to hear me teach the lecture. These lectures will be introduced sequentially throughout the duration of the course. All lectures are recorded, so you will be able to play back the lectures repeatedly, if and when needed. I will try to always have three lectures posted ahead of time. Don’t expect to find dozens of recorded lectures posted ahead of time.

The e-learning online discussion boards will be the prime source of additional information and feedback. Make heavy use of the discussion forum in order to obtain feedback on each lecture. I encourage you to visit the e-learning discussion boards several times each week. This is a hands-on course in which problem solving is the most important part of the course. You will be working on many statistics problems for 15 weeks, so be prepared for a journey into the world of biostatistics.

The text by Bernard Rosner is used at Harvard University to teach Public Health students biostatistics. The text is challenging and it is accurate and up to date. I will help you navigate through the many pages of this text by lecturing directly from the text. It is very important that you buy the Seventh Edition and that you have the text with you from the start of the spring semester. I will sit at my desk, with the microphone on, and I will turn the pages of the text to help you understand the material. When needed, I will “leave the text”, to write some explanations, or to show you how to write a SAS program for a given statistical analysis. Then I will return to the text. I will try not to bore you with “reading from the text”, but I feel this method may be the best for you to learn as much as possible in an organized manner. The text is simply a mandatory item to have handy.

The first eight chapters of the text were covered in your first course in statistics. At least this is what is being assumed. I understand that for many students, the past course seems to be decades ago, so I will not assume much knowledge in statistics.
**Explanation of the grading evaluation:**

a. **Project.** Each student will be involved with collecting data from some applications in the Biological or health sciences or from approved websites, and to analyze the data and then write a report about the findings. The software SAS must be used in the analysis of the data. I will post details about the project description when the time is right for you to get started on it.

b. **Online discussions.** Students are highly encouraged to participate in any online discussion that I might schedule. You are welcome also to discuss the lessons amongst yourselves by using the threaded discussions, chat rooms, or email.

c. **Homework.** The homework is designed to complement the lectures, and is essential for a full grasp of the material. You are encouraged to attempt all homework exercises. I encourage you strongly to post your questions in the e-learning discussion forums so that other students and I can help out when needed. I will assist you with any problems via elearning. The assignments will be collected and graded, and you are responsible to practice all of the assigned problems.

d. **Exams.** The exams are emailed to your proctors at given times of the semester, and you will be given a specific time to complete your exams. I will make use of a teaching center to proctor the comprehensive final exam. The final exam will be an in-class, closed book exam in which a simple one-page formula sheet is allowed. No examples or solutions are allowed on the formula sheet. The final exam is comprehensive and is designed to reflect any improvements in the students' performances.

**Letter grade equivalencies** are as follows:

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<tr>
<th>Grade Range</th>
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<tbody>
<tr>
<td>91 – 100</td>
<td>A</td>
<td>71 – 78</td>
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<td>90 – 91</td>
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<td>88 – 90</td>
<td>B+</td>
<td>68 – 70</td>
<td>D+</td>
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<tr>
<td>81 – 85</td>
<td>B</td>
<td>61 – 68</td>
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<td>80 – 81</td>
<td>B-</td>
<td>60 – 61</td>
<td>D-</td>
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<tr>
<td>78 – 85</td>
<td>C+</td>
<td>Below 60</td>
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**Required Texts**

- Fundamentals of Biostatistics, 7th ed. by Bernard Rosner, Publisher : Prentice Hall

**EXPECTATIONS FOR ACADEMIC CONDUCT/PLAGIARISM POLICY:**

Due to the distance learning nature of this course, all requirements must be completed within the time scheduled, unless prior arrangements are made with the instructor. Participation in online forum discussions will be graded using this Discussion Forum Grading Rubric. Your final grade will be determined by the points you accumulate within each category, divided by the total points available within that category. These scores will then be weighted based upon the percentages indicated above to determine your final grade. On-line facilities will be provided so students can monitor their own progress.
EXPECTATIONS FOR ACADEMIC CONDUCT/PLAGIARISM POLICY:

- Academic Conduct Policy [Web]
- Plagiarism Policy [PDF]
- Student Handbook [PDF]

It is the philosophy of The University of West Florida that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, and the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

In addition, any behavior that interferes with the conduct of a class is classified as disruptive behavior and will not be tolerated. Although not exhaustive, examples of disruptive behavior would include: inappropriate or threatening online postings or e-mails, etc.

QUALITY ASSURANCE:

This course is reviewed during the semester and in an ongoing basis for quality by assessment personnel within the School of Allied Health and Life Sciences (SAHLS) to meet national standards established by the Southern Association of Colleges and Schools, the Council on Education for Public Health, and/or to address quality enhancement initiatives of SAHLS. Student feedback is also vital to this process. When reviewing our programs, our accrediting partners expect to see 100% participation in the State-of-Florida mandated SUSSAI (State University System Student Assessment of Instruction) evaluations. Thus, at the end of the semester, we need to hear from the folks that enjoyed the class and from the folks that have suggestions for improvement (ok, and from the folks that want to fill out the survey as quickly as possible with no comments to share!). BUT, we do need to hear from each and every student in this class, and we value your input.

When SUSSAI evaluations are ready for you to complete, you will see a News posting in the course. Please take a few minutes to complete this anonymous, brief web-based evaluation on this course, using these directions:

Step 1: Log in to Argus (http://argus.uwf.edu).
Step 2: Click on the "My Info" tab.
Step 3: Click the link under the category "Personal Student Record Access" that says "Instruction Assessment (Distance Learning).
Need help? Contact Connie Works at (850) 474-3080 or cworks@uwf.edu for assistance!

Please be assured that all evaluations that are completed online are of a confidential matter. Your name, social security number, and e-mail address will not be revealed to your instructor, department, or college. Only one evaluation per course per student can be submitted. Please do not delay completing the evaluation when the time approaches. Due to the significance of this information, I will not be able to pre-release grades in eLearning if we are not close to the 100% participation goal before finals week. Thank you!

ASSISTANCE:

Students with special needs who require specific examination-related or other course-related accommodations should contact Disabled Student Services (DSS), dss@uwf.edu, (850) 474-2387. DSS will provide the student with a letter for the instructor that will specify any recommended accommodations.
Every effort will be made to accommodate the special needs of disabled students. Please inform the instructor privately during the first week of class to indicate your particular needs. All such accommodations are officially arranged through the Office for Disabled Student Services and a letter from this office must accompany your request.