## JJUS 7973: Advanced Statistical Techniques II

<table>
<thead>
<tr>
<th>Department of</th>
<th>Justice Studies</th>
<th>College of</th>
<th>Juvenile Justice &amp; Psychology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instructor Name:</strong></td>
<td>G. Solomon Osho, Ph.D.</td>
<td><strong>Office Location:</strong></td>
<td>Don K. Clark Building 3rd Floor, Room #356 Main Campus Juvenile Justice &amp; Psychology</td>
</tr>
<tr>
<td><strong>Office Phone:</strong></td>
<td>932-261-5236</td>
<td><strong>Fax:</strong></td>
<td>932-261-5249</td>
</tr>
<tr>
<td><strong>Email Address:</strong></td>
<td><a href="mailto:gosoho@pvamu.edu">gosoho@pvamu.edu</a></td>
<td><strong>Snail Mail (U.S. Postal Service) Address:</strong></td>
<td>Prairie View A&amp;M University P.O. Box519 Mail Stop 2600 Prairie View, TX 77446</td>
</tr>
<tr>
<td><strong>Office Hours:</strong></td>
<td>Monday 8:30-AM–1:30PM Tuesday 8:30-AM–9:30AM Tuesday 11:00-AM–12:30PM Thursday 8:30-AM–9:30AM Thursday 11:00-AM–12:30PM</td>
<td><strong>Virtual Office Hours:</strong></td>
<td>Monday 8:30-AM–11:30AM</td>
</tr>
<tr>
<td><strong>Course Location:</strong></td>
<td>Main Campus Juvenile Justice &amp; Psychology 3rd Floor, Room #341/332</td>
<td><strong>Class Meeting Days &amp; Times:</strong></td>
<td>Tuesday 2:00 pm-5:00pm</td>
</tr>
<tr>
<td><strong>Course Abbreviation and Number:</strong></td>
<td>JJUS 7973: Advanced Statistical Techniques II</td>
<td><strong>Catalog Description:</strong></td>
<td>Advanced Statistical Techniques II. (3-0) Credit 3 semester hours. Includes a survey of reliability analysis, loglinear, and logit loglinear analysis, nonlinear, weighted and two stage least-squares regression, probit analysis, time-series and survival analysis, and Cox regression. Prerequisite: Admission to doctoral program and JJUS 7963.</td>
</tr>
<tr>
<td><strong>Prerequisites:</strong></td>
<td>Admission to doctoral program and JJUS 7963.</td>
<td><strong>Co-requisites:</strong></td>
<td>NA</td>
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</tbody>
</table>
### Course Goals or Overview:
The goal of this course is to:

1. Understand the reasoning process used in testing research hypotheses and estimating parameters, and use this process to analyze and interpret research findings.
2. Explain what a sampling distribution is and how knowledge of the characteristics of sampling distributions is used in statistical inference.
3. Distinguish between the roles of research design and statistical analysis in educational research, and understand the limitations of statistical analysis in compensating for design flaws.
4. Make defensible choices regarding which statistical procedures should be used to analyze the data in a given research study consistent with the researcher’s purpose, the design of the study, the nature of the variables to be analyzed, and other relevant considerations.
5. Understand the similarities and differences between various types of analysis of variance including univariate versus multivariate studies; single-factor versus multi-factor designs; completely randomized, randomized block, and split plot designs; and fixed, random, and mixed models, etc.
6. Plan, conduct, and interpret the results of follow-up analyses of statistically significant main effects and interactions.
7. Understand the difference between statistical significance and practical significance. Use descriptive statistics, effect size estimates, and measures of the strength of association in addition to the results of significance tests when interpreting research findings.
8. Understand the similarities and differences between multiple regression analysis (MRA), analysis of variance (ANOVA), analysis of covariance (ANCOVA), and the general linear model (GLM).
9. Use computer software to explore data sets, compute descriptive statistics, estimate parameters, and test hypotheses to analyze research data. Read and interpret the resulting printouts with confidence and understanding.
10. Acquire a working knowledge of the vocabulary of modern statistics including conventional symbols, terminology, and basic operations. Use this knowledge and understanding to successfully communicate with other scholars in your major discipline and in related fields.
11. Read and critique with confidence and understanding the statistical sections of completed research reports in journals and other sources.
12. Know when, where, and how to seek qualified assistance on issues related to research design and statistical analysis.

### Program Learning Outcomes [PLO]:

Upon completion of the undergraduate program in criminal justice, the student will know:

1. Use advanced statistical tests appropriate for the doctoral level
2. Use advanced research methodologies appropriate for the doctoral level
3. Critique theoretical formulations
4. Practice professional standards of the discipline
5. Produce scholarly research

### Course Objectives
At the end of this course, the student will

1. To enhance student s in advanced application of data gathering in criminology, criminal/juvenile justice or
2. Utilize advanced statistical analysis for samples techniques and levels of measurement; Understand the mechanism of inferential statistics, probability theory, sampling distribution such as the normal distribution;
3. Be able to perform point estimation and confidence interval, and to test hypotheses about one and two population means and proportion;
4. Understand the mechanism of analysis of special cases for multivariate regression and generalized linear models in testing hypotheses or in investigating relationship between variables.

Alignment of course objectives, program outcomes, and core curriculum outcomes:
At the end of this course, the student will

<table>
<thead>
<tr>
<th>Course objectives</th>
<th>Program Outcomes</th>
<th>Social and Behavioral Sciences Core Curriculum Outcomes</th>
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<td>1. To enhance student s in advanced application of data gathering in criminology, criminal/juvenile justice or psychology;</td>
<td>2 Use advanced research methodologies appropriate for the doctoral level</td>
<td></td>
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<tr>
<td></td>
<td>3. Critique theoretical formulations</td>
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<td></td>
<td>4. Practice professional standards of the discipline</td>
<td></td>
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<td>3. Be able to perform point estimation and confidence interval, and to test hypotheses about one and two population means and proportion</td>
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<td></td>
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<tr>
<td></td>
<td>5. Produce scholarly research</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>5. Produce scholarly research</td>
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</table>

Course Evaluation Methods
Lecture materials will not be available in advance. The reason for that is that this is not a self-paced course. I do not want you to get ahead of yourself. I want this course to be much like a traditional course in that you are on the computer each week reading lectures, participating in discussion and turning in assignments. I will not accept any assignments ahead of time unless you are out of reach of your computer due to illness or for some other reason. If you do have to turn in work ahead of time, please let me know.

Grading Distribution for Assignments
- Assignments = 20%
- Midterm exams = 20%
- Final comprehensive exam = 30%
- Class participation = 10%
- Term Paper Must be publishable = 20%
This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

- **Exams** – written tests designed to measure knowledge of presented course material
- **Exercises** – written assignments designed to supplement and reinforce course material
- **Projects** – web development assignments designed to measure ability to apply presented course material
- **Class Participation** – daily attendance and participation in class discussions

**Grading Matrix**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Value (points or percentages)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>5 assignments at 10 points each</td>
<td>20</td>
</tr>
<tr>
<td>Term Paper</td>
<td>1 paper</td>
<td>20</td>
</tr>
<tr>
<td>Mid Term Exam</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Class Participation/ Discussion</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Final Exam</td>
<td></td>
<td>30</td>
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<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
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</table>

**Grade Determination:**

- 95-100 = A
- 85-94 = B
- 75-84 = C
- 75  = D

**Course Procedures**
The course will be taught completely face-to-face instruction. Students are expected to read the required textbooks, as well as lecture concerning each day's topic. Students will be given multiple-choice exams every two days over the reading material and lectures. Students will complete weekly assignments that could be exercises or problems to solve manually or by SPSS. Students will also be expected to have read all materials and be prepared to participate in threaded discussions.

**Submission of Assignments:**
The student is required to turn in written assignments. They may be exercises similar to those at the back of the chapter. The purpose of the assignments as well as the bi-weekly exams is simply to ensure that you have read and understood the lecture material and the content of each chapter. The assignments are due a day after they have been made available. Post assignments in TrueOutcomes as assigned by instructor.

**Formatting Documents:**
Microsoft Word is the standard word processing tool used at PVAMU. If you’re using other word processors, be sure to use the “save as” tool and save the document in either the Microsoft Word, Rich-Text, or plain text format. The College of Juvenile Justice & Psychology uses the APA Publication Style Manual, 6th edition.

**Exam Policy**
Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook).

**Professional Organizations and Journals**
Academy of Criminal Justice Sciences [http://www.acjs.org/](http://www.acjs.org/)
Southwestern Association of Criminal Justice [http://www.cj.txstate.edu/SWACJ/intro.htm](http://www.cj.txstate.edu/SWACJ/intro.htm)
Criminal Justice Journals [https://www.msu.edu/~dejonge/cj907/journals.html](https://www.msu.edu/~dejonge/cj907/journals.html)

**References and Web Links**
Attorney General of Texas [http://www.oag.state.tx.us/](http://www.oag.state.tx.us/)
Census Bureau [http://www.census.gov/](http://www.census.gov/)
COURSE OUTLINE AND SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 20</td>
<td>Review: variance</td>
<td>Howell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other Sources</td>
</tr>
<tr>
<td>Jan. 21 &amp; 22</td>
<td>Sampling distributions &amp; hypothesis tests</td>
<td>Chaps. 3, 4 &amp; 7</td>
</tr>
<tr>
<td>Jan. 23-25</td>
<td>Power, effect sizes, and significance</td>
<td>Ch. 8</td>
</tr>
</tbody>
</table>
Jan. 30 & Feb. 1  One-factor analysis of variance  Ch. 11
Feb. 6 & 8  Multiple comparisons among means  Ch.12  Kirk (1994)
Feb. 21-22  Interaction and simple effects  Pp. 430-438
Feb. 27  Multiple comparisons, power, and magnitude of effects  Pp. 438-442 & 446-449
Mar. 1  Fixed, random, and mixed models; and unbalanced designs  Pp. 442-446
Mar. 6  Higher-order factorial designs  Pp. 456-466
Mar. 13  Between- and within-subjects designs  Pp. 494-508
Mar. 15  Three within-subjects variables  Pp. 508-525
Mar. 16-20  Exam #3
Mar. 20  General Linear Model  Pp. 533-543
Mar. 27  Probit analysis  
Cox regression  Pp. 551-558
Mar. 29  Logistic Regression and diagnostics  Pp. 558-563  Venter & Maxwell
Apr. 3  Time-series and Survival analysis  Pp. 563-582
Apr. 4-10  Exam #4
Apr. 5  General Linear Model  
loglinear, and logit loglinear  Pp. 603-624
Apr. 10  One-way analysis of covariance  Pp. 625-637
Apr. 12, 17  Factorial analysis of covariance  Pp. 638-647
May 08  Final Exam (2:00 p.m.-5:30 p.m.)
REFERENCES FOR THE SUPPLEMENTARY READING ASSIGNMENTS


Thompson, B. (1999). Improving research clarity and usefulness with effect size indices as supplements to statistical significance tests. Exceptional Children, 65, 329-337.


ADDITIONAL RECOMMENDED REFERENCE SOURCES


College Educational Philosophy: The College of Juvenile Justice & Psychology is committed to producing graduates with superior written and oral communication skills. Instructional techniques will include a variety of technological and research tools. Our pedagogy emphasizes content and style in both individual and group settings. Our professors are encouraged to use their individual creative styles in the pursuit of academic excellence.

University Rules and Procedures

Disability statement (See Student Handbook):
Students with disabilities, including learning disabilities, who wish to request accommodations in class, should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator. Requests for accommodation of a disability should be directed to: Dr. Kay Norman, Director of Student Services, P.O. Box 519 Mail Stop 1032, Evans Hall, Room 319, 936-261-3583, kfnorman@pvamu.edu, Website: http://www.pvamu.edu/pages/4016.asp.

Academic misconduct (See Student Handbook):
You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:
1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else’s words, ideas, or data as one’s own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one’s own work also constitutes plagiarism.
5. Signing a student’s name to a roll or related misrepresentation
6. Attempting to receive credit in one or more classes for the same paper or project without written approval of instructors involved.

Nonacademic misconduct (See Student Handbook):
The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor’s ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):
Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:
Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student’s course grade being reduced or in assignment of a grade of “F”. Absences are accumulated beginning with the first day of class.

Student Academic Appeals Process:
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

Consult the Undergraduate Catalog for guidelines and procedures. The student may follow the appeals process should an appeal be considered necessary. The first step is to present your case to your instructor, in writing. Your instructor will review your appeal and inform you of the decision. If you are still not satisfied, the second step is to go to your instructor’s supervisor [Coordinator of the Undergraduate Criminal Justice Program]. After presenting your case to the Coordinator in writing with supporting documentation, the Coordinator will make a decision relative to your appeal. If still unsatisfied, the third step is to go to the Coordinator’s supervisor [Chair, Department of Justice Studies]. Here you will present your appeal, in writing, stating that you had completed steps 1 and 2, but remain unsatisfied with earlier decisions from the instructor and the Coordinator. The Chair of the Department of Justice Studies will review your written appeal and will make the final decision for the Department of Justice Studies. Please note: Prior to utilizing the appeals process, be sure your appeal is valid and you have supporting documentation to substantiate your position. Do not appeal a grade just because you don’t like the one you earned. Be sure you know precisely what you want [if it is a higher grade] and be sure you have proper documentation [evidence] to support your appeal. Compile your evidence to support your position. Do your analysis. Present your case in a professional manner.

Course Requirements
The final grade in this course will result from four sources: assignments; bi-weekly exams; final exam; and class participation.

Final Exam
There will be a final comprehensive exam for the class. This exam will be held on May 09, from 2:00 PM to 5:00PM. The final exam comprises 30% of the student’s overall grade. This final exam is critically important in the sense that this is the only time that the student demonstrates in person their understanding of the material. If the performance in this final exam is not consistent with the other exercises turned in throughout the semester, the reliability of these other exercises may be seriously questioned. It is an essay-type, not a multiple choice/true false format. The exam is not open notes/open book, so the student needs to study the material, remember the important concepts steps to solving problems, to interpreting results and to drawing conclusions.

Class Participation
Class participation in this context means to be an active and regular member of the discussion board and of the class room when this option is made available. This comprises 20 percent of the total points.

Course Schedule
Lecture materials will not be available in advance. The reason for that is that this is not a self-paced course. I do not want you to get ahead of yourself. I want this course to be much like a traditional course in that you are on the computer each week reading lectures, participating in discussion and turning in assignments. I will not accept any assignments ahead of time unless you are out of reach of your computer due to illness or for some other reason. If you do have to turn in work ahead of time, please let me know.

Use Of The John B. Coleman Library
Most of you have experience in utilizing the on-line full text and abstract search engines. If you do not have that experience I will discuss how to use the library resources to complete your paper assignment. Under library catalogues you may conduct a search to determine if the library has any books on your topic. The library catalogue search will also identify any particular journals you may be looking for. However, to checkout these books require that you physically go to the library on campus. The article search will provide full-text articles and abstracts of articles on your topic. I recommend the following search engines: EBSCOHost, ERIC Digests, Academic Search Elite, Psychology & Behavioral Sciences Collection, and the Sociological Collection. If the
If the article you want is not available in full-text, I strongly recommend that you use the interlibrary loan option. With this option you may request that the library obtain the article or book for you. In most cases this is a free service. For that matter, the library has a link titled Distance Education Services. It is important that you click on that link and go through the services provided by the library. If you click on Class Aids you will find a link to Criminal Justice. With this link you can find useful criminal justice articles and websites. The online resources are terrific, but if you live near a university library, chances are that you can checkout books from that library using TexShare. A TexShare card will allow you to checkout books and other documents from several different Texas Universities. I recommend Texas A&M University if you live near College Station, Sam Houston State University if you are near Huntsville, University of Houston (which also has a great law library) for Houston area residents, the University of Texas if you live near Austin, and Southwest Texas State University if you live near San Marcos. Contact the John B. Coleman Library to obtain a TexShare card. This is also a free service.

**Technical Considerations for Online and Web-Assist Courses**

**Minimum Hardware and Software Requirements:**
- Pentium with Windows XP or PowerMac with OS 9
- 56K modem or network access
- Internet provider with SLIP or PPP
- 8X or greater CD-ROM
- 64MB RAM
- Hard drive with 40MB available space
- 15” monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Netscape Communicator ver. 4.61 or Microsoft Internet Explorer ver. 5.0 /plug-ins
- Participants should have a basic proficiency of the following computer skills:
  - Sending and receiving email
  - A working knowledge of the Internet
  - Proficiency in Microsoft Word
  - Proficiency in the Acrobat PDF Reader
  - Basic knowledge of Windows or Mac O.S.

**Netiquette (online etiquette):** students are expected to participate in all discussions and virtual classroom chats when directed to do so. Students are to be respectful and courteous to others in the discussions. Foul or abusive language will not be tolerated. When referring to information from books, websites or articles, please use APA standards to reference sources.

**Technical Support:** Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding your online course, call the Office of Distance Learning at 936-261-3290 or 936-261-3282

**Communication Expectations and Standards:**
All emails or discussion postings will receive a response from the instructor within 48 hours.

You can send email anytime that is convenient to you, but I check my email messages continuously during the day throughout the work-week (Monday through Friday). I will respond to email messages during the work-week by the close of business (5:00 pm) on the day following my receipt of them. Emails that I receive on Friday will be responded to by the close of business on the following Monday.

**Submission of Assignments:**
Assignments, Papers, Exercises, and Projects will be distributed and submitted through your online course. Directions for accessing your online course will be provided. Additional assistance can be obtained from the
Office of Distance Learning.

**Discussion Requirement:**
Because this is an online course, there will be no required face to face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board.

Students are required to log-on to the course website often to participate in discussion. It is strongly advised that you check the discussion area daily to keep abreast of discussions. When a topic is posted, everyone is required to participate. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.

**Academic Calendar – Spring 2010**

New Student Orientation  
1/13/2010
Check-In University Village New/Transfer Students  
1/13/2010
Check-In University Village - Returning Students  
1/13/2010
Meal Plans Begin  
1/14/2010
Regular Registration for Returning Students  
1/14/2010 - 1/15/2010
Regular Registration for Graduate Students  
1/16/2010
Dr. Martin Luther King Jr. Day (University Closed)  
1/18/2010
Instruction Begins  
1/19/2010
Late Registration and Drop/Add Begins  
1/19/2010
Late Registration, Add Courses, Change Major/Certification or any Matriculation Change Ends for Undergraduate Students  
1/22/2010
Late Registration, Add Courses, Change Major/Certification or any Matriculation Change Ends for Graduate Students  
1/23/2010
General Student Assembly-All Students Attend  
1/28/2010
Census Date (12th Class Day)  
2/3/2010
Last Day to Withdraw from Course(s) without academic record  
2/3/2010
Withdrawal from courses with academic record ("W") ends  
2/4/2010
20th Class Day  
2/15/2010
Mid-Semester Examination Period
Spring Break
3/15/2010 - 3/20/2010
Mid-Semester Grades Due
3/16/2010
Instruction Resumes
3/22/2010
Graduation Application Deadline for SUMMER 2010 AND FALL 2010
3/26/2010
Founders Day/Honors Convocation
3/31/2010
Good Friday/Easter (Student Holiday)
4/2/2010 - 4/3/2010
Withdrawal from Course(s) with academic record ("W") Ends
4/5/2010
Priority Registration Begins for Summer/Fall
4/13/2010
Course Review Day [Classes must convene and instructors will prepare students for Final Exams]
5/3/2010
Course Review Day [Classes must convene and instructors will prepare students for Final Exams]
5/4/2010
Last Class Day for Spring Semester
5/4/2010
Last Day to Withdraw from the University (From All Courses) for the Spring 2010 Semester
5/4/2010
Study Days for Exams
5/5/2010 - 5/6/2010
Final Examination Period
5/7/2010 - 5/12/2010
Commencement
5/15/2010
Final Grades Due for All Other Students
5/18/2010