

<b>Instructor:</b>	Muhammad Yaseen, PhD (Statistics, UNL-USA)
<b>Email:</b>	<a href="mailto:myaseen208@gmail.com">myaseen208@gmail.com</a>
<b>Course Web-site:</b>	All course documents will be available only through the course website ( <a href="https://myaseen208.netlify.com/teaching/">https://myaseen208.netlify.com/teaching/</a> ) and/or LMS of UAF.
<b>Office Hours:</b>	Monday, 09:00 – 10:00 AM
<b>Learning Objectives:</b>	<ol style="list-style-type: none"><li>1. To impart knowledge of the design of experiments as applied in many areas of biological &amp; experimental sciences.</li><li>2. To impart practical skills through problem solving using manual as well as computer skills.</li></ol>
<b>Contents:</b>	Factorial experiments, main effects & interactions, ANOVA model, fixed, random & mixed models, treatment structure, contrasts, orthogonal contrasts, & polynomials for quantitative treatment factors, single replicated trials, split plot design & its variants, hierarchical classification, combining experiments over locations, seasons & years, confounding in $2^n$ & $3^n$ factorial experiments & their analysis. Fractional factorials, crossover designs, response surface designs for optimal response.
<b>Texts:</b>	Kuehl, R. O. (1999). <i>Design of Experiments: Statistical Principles of Research Design and Analysis</i> . Duxbury Press. 2-nd edition.
<b>Other References:</b>	<p>Montgomery, D. C. (2012). <i>Design and Analysis of Experiments</i>. John Wiley &amp; Sons, Inc., 8-th edition.</p> <p>Gomez, K. A. and Gomez, A. A. (1984). <i>Statistical Procedures for Agricultural Research</i>. John Wiley &amp; Sons, Inc., 2-nd edition.</p> <p>Damon, R. A. and Harvey, W. R. (1997). <i>Experimental Design, ANOVA, and Regression</i>. Harper &amp; Row, Publishers, Inc.</p>
<b>Prerequisites:</b>	Stat-701, plus basic knowledge of computer
<b>Academic Honesty:</b>	You are encouraged to work together on homework, but the work you turn in must be your own (unless the assignment specifically states otherwise). Work on exams must be your own. Any act of academic dishonesty will result in a score of zero on the item in question and notification of department and university officials. Further action may be taken as warranted.
<b>Homework:</b>	Homework will be assigned throughout the semester and will give the student an opportunity to test his/her understanding of the material. Approximately 10 homework assignments will be made over the course of the semester. You will always have at least one week to complete them. The only way to learn statistics is to practice working problems, and homework are, therefore, essential parts of the course. <b>Only use A4 size paper for your work. No late homework will be accepted.</b>

<b>In-Class Activities:</b>	Critical thinking is an integral component of the course. To help you develop your critical thinking skills and better understand some of the ideas presented this semester, you will be asked to do some in-class writing assignments. These writing assignments may include minute essays, a summary of the lecture, or others. Because these writing activities are designed to assist in your learning, rather than to demonstrate what you have learned, these assignments will be graded on a participation basis.
<b>Peer Review:</b>	During the semester you will be asked to read and respond to the work of other students. This may include small writing assignments and homework. You will be graded on participation and the level of seriousness with which you approach the task (i.e., giving reasonable, appropriate feedback).
<b>Final Project:</b>	There will be a final project in this course. The project will be of your own choice but it must be approved by the instructor. The final project will have (i) <b>Introduction</b> (ii) <b>Material and Methods</b> (iii) <b>Results</b> , and (iv) <b>Discussion</b> sections. The introduction section must contain introduction of the problem, short literature review, clear statement of the objectives. The material and methods section will briefly describe data, how data was obtained and the methods that will be used to obtain the objectives. In the results section, you are expected to report the findings of the your analysis. In the discussion section, integrate the numbers with science, elaborate whether your findings make sense, tie your results with earlier findings, highlight the strengths and limitations of your findings and make conjecture.
<b>Exams:</b>	Exams will stress understanding and ability to apply the concepts. The final exam will be comprehensive. All students will be expected to take the exams on the announced dates. <b>Make-up exams will not be given.</b>
<b>How to be successful in the course?</b>	<p>To be successful in this course, I strongly suggest that you should:</p> <ul style="list-style-type: none"> <li>• Understand all the material in the course</li> <li>• Complete all homework</li> <li>• Read the corresponding sections of the textbook and reference books as we cover the course material</li> <li>• Understand all computer codes and calculations</li> </ul>
<b>Disclaimer:</b>	Information contained in this syllabus was, to the best knowledge of the instructor, considered correct and complete when distributed at the beginning of the term. However, this syllabus should not be considered a contract between UAF and any student. The instructor reserves the right, acting within the policies and procedure of UAF, to make changes in course content or instructional technique without notice or obligation.