



Wayland Mission Statement: Wayland Baptist University exists to educate students in an academically challenging, learning-focused, and distinctively Christian environment for professional success, and service to God and humankind. *The School of Mathematics and Sciences emphasizes a rigorous, ethical approach to the study of mathematics and science. We believe that success in these disciplines requires a broad base of content knowledge and the development of the critical thinking skills necessary for the ongoing acquisition, processing and communication of current subject matter. The activities of the School, both academic and professional, intentionally reflect the Lordship of Jesus Christ and His centrality to all of Creation.*

Course Title and Number: MATH 1306-VC01; Elementary Statistics

Term: Spring 2014

Name of Instructor: Dr. William Hahn

Office Phone and Email Address: 806-291-1127; hahnw@wbu.edu

Office Hours, Building, and Location: MWF 9-10; MTWR 2-3:30; and other times by appointment; Moody Science Building Room 120, Plainview Campus

Class Meeting Time and Location: Online

Catalog Description: This course develops skills in statistical measures, binomial and normal distributions, t-distribution, regression, correlation, hypothesis testing, and statistical software use.

Prerequisites: MATH 1304 (College Algebra)

Required Materials:

MyStatLab Student Access Kit, ISBN: 0321694643

All students need to have a scientific calculator for use on the exams.

You will need a broadband internet connection to watch the videos online.

Lecture Notes and Videos are available on the course page in Blackboard (<https://wbu.blackboard.com>)

Optional Materials:

Mario F. Triola, *Elementary Statistics, 12th Edition*, Pearson, ISBN: 0321836960, 2013

The physical copy of the textbook is optional because the Student Access Kit above will grant you access to an online copy of the textbook.

Outline and Outcome Competencies:

Be able to discuss and solve problems in the following areas:

Introduction to Statistics

- Types of Data
- Random Sampling

Organization of Data

- Population, Sample, Variables
- Histogram, Bar Chart, Pareto Chart, Pie Chart

Measures of Central Tendency and Dispersion

- Mean, Median, Mode, Midrange
- Standard Deviation, IQR, Range
- Minimum and Maximum Usual Values
- Z scores, Boxplot, Outliers

Probability and Probability Distributions

- Probability, Complement, Conditional Probability
- Random Variable, Probability Distribution, Expected Value
- Rare Event Rule
- Binomial Distribution
- Normal Distribution

Sampling Distributions

- Sampling Distribution of the Sample Mean
- Central Limit Theorem

Estimation

- Point Estimates
- Confidence Interval for the Population Proportion
- Confidence Intervals for the Population Mean
- Sample Size Calculations

Hypothesis Testing

- Null and Alternative Hypotheses, Types of Error, Language of Testing
- Testing a Population Proportion
- Testing a Population Mean
- Statistical and Practical Significance

Simple Linear Regression and Correlation

- Scatterplot
- Correlation, Cause and Effect
- Least Squares, Regression Line, Prediction
- Coefficient of Determination
- Confidence Interval for Mean Response
- Prediction Interval for Individual Response

Critical Thinking and Design

- Bad Data
- Misrepresentation
- Bad Graphs
- Observational Studies and Experiments
- Should You Believe A Statistical Study?

Attendance Requirements: Students are expected to actively participate in all required instructional activities in the course. Active participation in the course may include, but is not limited to, participating in a weekly discussion board, submitting/completing assignments in Blackboard, or communicating with the instructor. Any student absent 25% or more of the course, i.e., non-participatory during 3 or more weeks of an 11 week term, may receive an F for the course.

Any student who has not actively participated in the course prior to the census date is considered a "no-show" and will be administratively withdrawn from the course without record. To be counted as actively participating, it is not sufficient to log in and view the course. The student must be submitting work as described above.

Disability Statement: In compliance with the Americans with Disabilities Act of 1990 (ADA), it is the policy of Wayland Baptist University that no otherwise qualified person with a disability be excluded from participation in, be denied the benefits of, or be subject to discrimination under any educational program or activity in the university. The Coordinator of Counseling Services serves as the coordinator of students with a disability and should be contacted concerning accommodation requests at (806) 291-3765. Documentation of a disability must accompany any request for accommodations.

Assessment of Student Achievement:

There are 4 components to the final grade in this course.

1. **Lecture Videos and Notes:** You will be required to watch the videos for this course (available on the course page in Blackboard) and completely fill in the lecture notes for each section. This will be verified at each of the proctored exams. See Important Details #1 on the last page of this syllabus for more information.
2. **Homework:** You will have homework exercises that must be completed for each section that we cover in the course. The deadline for completing the homework will be the end of the day (Central Time) on Monday, each week (except for holidays). You will complete those online through the MyLab Interface. See the Introduction Lecture Video on Blackboard and Important Details #2 on the last page of this syllabus for more information.
3. **Quizzes:** Each week of the course you will be required to complete an online quiz through the MyLab Interface covering the sections from that week. The deadline for completing this quiz will be the end of the day (Central Time) on Monday, each week (except for holidays). You can take the quiz up to **two times** and your higher score will be counted. Each time you take the quiz, the questions will be randomly generated, but of the same type.
4. **Exams:** During the course, there will be two major exams: a Midterm (scheduled for the week of March 31-April 5) and a Final (scheduled for the week of May 12-May 17). Both of these tests are to be taken **in person** at one of Wayland's campuses or a testing center. They will be paper and pencil tests which will be sent to your instructor for grading. They must be proctored by an approved representative of the University. See Important Details #3 on the last page of this syllabus for more information.

Homework	20%
Weekly Quizzes	20%
Midterm	20%
Final Exam	30%
Midterm Lecture Notes.....	5%
Final Lecture Notes	5%

A: 90 – 100 B: 80 – 89 C: 70 – 79 D: 60 – 69 F: Below 60

There have now been many studies of elite performers--concert violinists, chess grandmasters, professional ice-skaters, mathematicians, and so forth--and the biggest difference researchers find between them and lesser performers is the amount of deliberate practice they've accumulated. Indeed, the most important talent may be the talent for practice itself. K. Anders Ericsson, a cognitive psychologist and expert on performance, notes that the most important role that innate factors play may be in a person's *willingness* to engage in sustained training. He has found, for example, that top performers dislike practicing just as much as others do. (That's why, for example, athletes and musicians usually quit practicing when they retire.) But, more than others, they have the will to keep at it anyway.

- *The Learning Curve* by Atul Gawande (The New Yorker, January 28, 2002, pp 52-61)

Course Schedule (All times are for the Central Time Zone, so plan accordingly)

March 3: Quiz 1, Homework Sets 1, 2, & 3 (Chapters 1 & 2)

March 18: Quiz 2 and Quiz 3, Homework Sets 4, 5, 6, & 7 (Chapters 3 & 4)

March 24: Quiz 4, Homework Sets 8 & 9 (Chapter 5)

March 31: Quiz 5, Homework Sets 10 & 11 (Chapter 6)

Midterm, Proctored Paper and Pencil Exam, Covers Chapters 1 through 6
Must be completed between Monday, March 31 and Saturday, April 5
Note that you are responsible for Session 5 and the Midterm at the same time

April 7: Quiz 6, Homework Set 12 (Section 7-2)

April 14: Quiz 7, Homework Set 13 (Section 7-3)

April 22: Quiz 8, Homework Set 14 (Section 8-2)

April 28: Quiz 9, Homework Sets 15 & 16 (Sections 8-3 & 8-4)

May 5: Quiz 10, Homework Sets 17, 18, & 19 (Chapter 10)

May 12: Quiz 11, Homework Sets 20 & 21 (Chapter 1)

Final Exam, Proctored Paper and Pencil Exam, Covers Chapters 7, 8, 10, & 1
Must be completed between Monday, May 12 and Saturday, May 17

This online course covers the same material in 10 weeks that would be covered in 16 weeks over the course of a semester. Therefore, you should plan to spend a minimum of 8-10 hours per week watching the videos and filling in the notes, doing the homework, and taking the quizzes.

Academic Honesty: University students are required to conduct themselves according to the highest standards of academic honesty. Any student guilty of cheating or other forms of academic dishonesty may be assigned a grade of F for the entire course. University policy requires that all incidents of cheating or academic dishonesty be reported to the Dean of the School of Math and Science and to the WBU administration.

Course Communication Policy: Wayland email is the official method of communication between instructors and students taking courses through Wayland Baptist University. Students are required to establish and activate their Wayland email account. Instructors reserve the right to deny email from other sources.

Important Details

Here are a few VERY important details that you should make note of as you prepare to get the course underway:

1. Lecture Notes

As part of this course, you will watch the series of lecture videos and fill in the lecture notes. You may either print out the PowerPoint files and fill them in by hand or download the files and fill them in on your computer.

In order to verify that you have filled in the lecture notes, you may either take the completed notes to the Midterm and Final exams to show to the test proctor, or you may upload the files (PowerPoint or scanned versions of your notes) to an assignment in Blackboard that will be available the week of the test.

2. Online Homework and Quizzes

The course is split between watching videos and participating in the Discussion Boards in Blackboard and completing homework and quizzes at MyLab. You should check the Discussion Board in Blackboard on a regular basis for new postings. Each homework problem can be attempted an unlimited number of times (e.g., until you get it correct) and you will be given immediate feedback on your responses. Homework sets can be worked on until midnight of the Friday after the due date, with a late submission penalty of 10% per day (applied only to questions scored after the due date). You may work ahead as your schedule dictates, but remember that you must participate weekly as per the attendance policy.

You need to set up your student account at MyLab (through the course Blackboard site) before you begin any work in the course. A MyLab Student Access Code is in the MyStatLab Student Access Pack that you can purchase from Wayland's bookstore. A code can also be purchased with a credit card directly on the MyLab website. If you need to use financial aid to buy the access code, your local campus should be able to contact the Wayland bookstore and arrange for financial aid to pay for the code. A free 14-day trial is available if you are experiencing financial aid problems.

3. Proctor

Both the Midterm and the Final are paper and pencil tests and must be administered by a Wayland-approved proctor.

If you are planning on taking the tests at a Wayland campus you do not need to submit a proctor request form. However, you should contact the campus the week before your test to arrange a date and time for you to take the test, to find out where the test will be administered, and to give them the course number (MATH1306) and instructor name (Dr. Hahn).

For the Plainview campus, contact the Virtual Campus offices at 800-203-9048.

For external campuses, see the listing at http://www.wbu.edu/about_wayland/campus_locations/ for contact information.

If you cannot take the tests on a Wayland campus, you must have your proctor approved by Wayland before they can administer the tests. The proctor must be approved every term (but only once per term) even if they have proctored tests for Wayland in past terms.

The proctor request form is located at http://www.wbu.edu/academics/online_programs/proctor/proctorrequest.htm, and should be filled out **as soon as possible**. Once the form is filled out, the proctor will receive an email requesting they provide certain information for verification. When the information has been provided, the Virtual Campus will approve or deny the request and will notify both the student and the proctor by email. Do not forget to contact the proctor the week before the test to arrange a date and time and location (and to let them know the course number and instructor name).

Important Dates:	Census Date	March 12
	Spring Break (No Class)	March 10-14
	Easter Break (No Class)	April 18-21
	Last day to withdraw with "W"	April 25
	Last day to withdraw with a "WP/WF"	May 2
	Last day of the term	May 17

Whatever you do in word or deed, do all in the name of the Lord Jesus, giving thanks through Him to God the Father.

- Colossians 3:17

This syllabus is only a plan. The teacher may modify the plan during the course. The requirements and grading criteria may be changed during the course if necessary. Proper notice of any changes will be given to the class.