

Spring Semester 2019

STAT-285-001 Elementary Statistics

This syllabus may be revised at any time at the discretion of the instructor.

Course Content and Bulletin Course Description

STAT285 is an introduction to descriptive and inferential statistics that includes implementation on SPSS. Topics covered: measures of central tendency, measures of variability, histograms, charts, correlation coefficients, reliability and validity, hypotheses, the normal distribution, significance, Type I & II errors, tests of significance, confidence intervals, one-sample z-test, t-tests for independent and dependent means, effect size, ANOVA, factorial ANOVA, MANOVA, testing significance of correlation coefficients, chi-squared test, linear regression, multiple regression, logistic regression, and the reporting of results.

Course description from the Bulletin: A study of basic descriptive and inferential statistics, including elementary probability and probability distributions, statistical inference involving binomial, normal, and t-distributions, and hypothesis testing.

Course Prerequisites

Prerequisite: MPE \geq P2 or ACT MATH \geq 20

General Class Information

Location: HYH 133 (Science Complex, Math/Physics Amphitheater)

Time/Day: MWF 09:30-10:20

Credits: 3

Instructor Contact Information

Instructor: Dr. Shandelle M. Henson

Telephone: 269-471-3423 (landline to front office of department)

Email: henson@andrews.edu

URL: <http://www.andrews.edu/~henson/current.html> [All class materials can be found here! They are not on LearningHub.]

Office Location: HYH 125

Office Hours: MWF 10:30-11:20am. I am available other times by appointment. Send me an email to set up an appointment.

Student Contact Information

Make sure to check your Andrews email address. You are responsible for any information I send the class from the iVue email system.

Textbook and Course Materials

READ THIS CAREFULLY:

You are **REQUIRED** to have the following 4 things. You can buy the first three things (book + SPSS + WebAssign) as a bundle from the bookstore OR you can buy them separately online. If you do buy the bundle, you will get a free e-textbook along with your paper textbook.

1. Textbook: Neil J. Salkind: Statistics for People Who (Think They) Hate Statistics, Edition 6. You must have Edition 6. This book uses SPSS; do NOT get the Excel edition. You can get this as part of the bundle, or you can buy it separately (to buy separately, use ISBN-13: 978-1506333830; paperback).

2. Access to SPSS: This statistics software program is installed on the lab computers in Chan Shun Hall, Bell Hall, Marsh Hall, James White Library, the Math Center, and the Residence Halls. If you want your own copy so you can do your homework on your own computer at home, you can buy a student version, either as part of the bundle, or separately. Please note that Dr. Henson cannot help with installation issues or software problems if you install on your own machine. If you buy the bundle, the publisher SAGE offers good support for installation problems.

3. WebAssign subscription (the company is Cengage). Some of you may already have a paid WebAssign or Cengage subscription from another class. If not, you can buy it in the bundle, or you can buy it separately at <https://webassign.com/>. When you go into WebAssign, you will need the **CLASS KEY**, which is **andrews 9523 4916**. This allows you to sign up for my class in WebAssign. You can sign up early in order to get on the roster, but you will not see the course content until Sun 06 Jan 2019. You will have a free "grace period" until Sun 20 Jan 2019. At that point you must either enter the Access Code that came with your bundle, or else you

must pay WebAssign with a credit card online (if you did NOT buy the bundle). I suggest that, **if you do buy the bundle, you enter your Access Code (that comes with the bundle) right away to make sure it works.** That way, if there is a problem, you will still have the grace period to find a solution.

NOTE: When you sign up for WebAssign and join my roster, please use the same name that iVue uses for you. Otherwise there can be a problem mapping between WebAssign and iVue.

Bookstore Bundle:

Bundle ISBN: 9781506391168

BUNDLE: Salkind: Statistics for People Who (Think They) Hate Statistics 6e + Salkind: Statistics for People Who (Think They) Hate Statistics 6e Interactive EBook + IBM SPSS Student Vs 23.0 + WebAssign

For price information, please see the listing at the Andrews University Bookstore www.andrews.edu/bookstore.

4. Calculator: You do NOT need a scientific calculator for this class. You DO need a simple calculator that does arithmetic, takes square roots, and does natural logs and exponentials (for example, has an “ln” key and an “exp” or “e^x” key). You may use your phone as a calculator. However, during exams you must not use the phone for any other purpose except as a calculator and/or clock.

Course Objectives

The primary objectives of this course are to:

1. Develop critical thinking skills.
2. Learn how to correctly infer information from data and how to report results.
3. Learn SPSS and list that skill on your resume.

Andrews Core Experience (ACE) Learning Outcomes

STAT285 serves as a general education (ACE) course for some professional programs. Its objectives directly satisfy the following components of the ACE general education learning outcomes:

Seek Knowledge

[S2] Develop the ability to think critically, observe accurately, analyze quantitatively, draw reasonable inferences, perceive relationships, and show the ability to discriminate among alternatives and design creative strategies to solve problems.

Affirm Faith

[A1] Construct a thoughtfully conceived worldview that recognizes the roles of Scripture, nature, and human discovery as sources of truth.

Attendance

Attendance is 20% of your grade. If you are not present when attendance is taken, you will be marked absent. Absences, both excused and unexcused, are covered under the “Make-up Work Policy” below.

Homework & Reading

Homework is 20% of your grade and is due at the beginning of each class. You will do your assignments in WebAssign. All assignments will include a reading from the book.

Quizzes

Quizzes are 20% of your grade. There will be a quiz each class meeting. The quiz will cover the reading for that day and material from that day’s class lecture/discussion and previous material. The quiz will help you stay alert in class and it will **help you prepare for the exams. Collect and keep your graded quizzes!**

Exams

There will be one 50-minute Midterm Exam in class. There will be a **comprehensive 2-hour Final Exam during exam week, on**

Monday 29 April at 10:30-12:30. These exams will be based on your homework, quizzes, and class notes. The Midterm Exam is 20% of your grade, and the Final Exam is 20% of your grade.

Every student will take the entire comprehensive Final Exam. It will be organized into two parts. Part I will address the material covered on the Midterm Exam, and Part II will address the material covered after the Midterm. If the grade on Part I of the Final Exam is greater than the grade on the Midterm Exam, then the grade on the Midterm is replaced by the grade on Part I of the Final Exam. For example, if you miss the Midterm (and thus get a zero) or you get 68% on it, and you get 92% on Part I of the Final Exam, then your Midterm Exam grade will become 92%. The replacement does not operate in the opposite direction (your Final Exam score is what it is and does not change).

Make-up Work Policy for both Excused and Unexcused Absences

1) No make-up homework, quizzes, or attendance are accepted for any reason. Instead, I will drop your four lowest homework scores, your four lowest quiz scores, and your four lowest attendance scores (which may include zeros from missing work or attendance).

Note: If you are ill for more than a week, get a note from the doctor and talk to the instructor as soon as possible.

2) No make-up Midterm Exams are given for any reason. Instead, you would use the replacement score from Part I of the comprehensive Final Exam (see explanation of Final Exam in section above).

3) No make-up Final Exams are given. By University policy you **MUST** take the final exam at the scheduled time. If you have a legitimate emergency according to University policy, then you may take an Incomplete and make up the Incomplete at a later time, but only in consultation with the instructor. **If you miss the Final Exam for any other reason, you will receive a zero on the Final Exam.**

Assessment and Grading Scale

A course percentage grade will be calculated from:

Attendance (20%)

Homework (20%)

Quizzes (20%)

Midterm Exam (20%)

Final Exam (20%)

93-100 A; 90-92 A-; 87-89 B+; 83-86 B; 80-82 B-; ... ; 60-69 D; 0-59 F

Here is the University policy on the grade of Incomplete:

An incomplete can be assigned only if the following stipulations are met:

1. The major portion of the work for the course has been completed
2. The student's work is incomplete because of illness or unavoidable circumstances
3. Incomplete cannot be assigned because of negligence or inferior performance.

Integrity and Collaboration

Homework: Discussion of homework is fine, but **each student must independently write up his or her own solutions** in WebAssign. **It is cheating to have someone else do your assignment in WebAssign.**

Quizzes and Exams: There is no collaboration on quizzes and exams. **It is cheating to turn in a quiz for someone else.**

Attendance: **It is cheating to turn in attendance for someone else.**

Honesty in all academic matters is a vital component of personal integrity. Any breach in academic integrity is serious. Acts of academic dishonesty are subject to action by the University Integrity Council and will be recorded in your integrity file.

Getting Help

1) Office Hours: See Instructor Contact Information above.

2) Math Center: HYH 112. Free math tutoring! The hours will be posted outside the door.

3) Student Success Center: success@andrews.edu. There are several STAT285 tutors on staff who have had this same class. See http://www.andrews.edu/academics/student_success.html.

Other Course Policies

Disability Accommodation

If you qualify for special assistance under the American Disabilities Act, please contact the Student Success office at Nethery Hall 100 or disabilities@andrews.edu.

Professionalism

Respect for each student and the teacher will be shown at all times. In order to prepare students for the professional world, certain behaviors/activities are not allowed in the classroom.

- Cell Phones, Personal Laptops, and Recording devices: **Cell phones should be silenced** before entering the classroom. Picture-taking during class and recording devices are allowed only if pre-approved by instructor, and if approved, under no circumstance are pictures or recordings—visual or verbal—to be posted on a public website. Laptops, iPads, texting, etc. should not be used except by permission of the instructor. It is unprofessional to use these devices inappropriately when someone is speaking to you. Please talk to the teacher if you need to use a device for a legitimate reason.
- Eating in class: Do not bring food to class. Water or a hot drink is fine.
- Talking; walking in and out of class: Don't talk when the instructor is talking. Use the restroom before you enter the classroom. It is unprofessional to walk in and out of class unless you have an emergency.
- Your personal professional style and presentation: How will you be perceived as a professional? Active participation in discussions is an essential part of learning to be a professional. Without participating and expressing opinions and thoughts, it is impossible to clarify your goals and develop a personal style.
- Get to know your professors; otherwise they will not be able to write letters of recommendation for you.

Emergency Protocols

Andrews University takes the safety of its student seriously. Signs identifying emergency protocol are posted throughout buildings. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting that specific location. It is important that you follow these instructions during any evacuation or sheltering emergency.

If the teacher does not arrive on time to class

If a teacher is detained and will be late, the teacher will send a message, if possible, to the class with directions. If after 10 minutes no message has been received, students may (and should) leave without penalty.

Instructor Profile

Shandelle Marie Henson is a mathematical ecologist. She has a PhD in Mathematics from the University of Tennessee, Knoxville (partial differential equations) and an MA in Mathematics from Duke University (mathematical logic). She did postdoctoral work at the University of Arizona, Tucson (bifurcation theory). Her research area is dynamical systems, with a focus on bifurcations and chaos as applied to ecology. Her husband is Dr. Jim Hayward, Research Professor of Biology. They do joint research in mathematical behavioral ecology, working with seabirds. They are enthusiastic about hiking, geology, rock collecting, reading, writing, classical music, healthful living, and of course, research. Dr. Henson also enjoys oil painting, cooking/baking, and trail running. She has a passion for understanding what it means to follow Jesus in the 21st century.

Final Notes and Suggestions

- Always bring a **calculator** to class. You often will need it for your quiz.
- When we begin hypothesis testing, bring your **textbook** to class. We use the tables in the back of the book.
- I suggest dedicating a **bound notebook** (e.g. a lab-type, bound, college-ruled notebook) to this class. Take good notes by hand and plan to keep the notebook. When you use statistics in the future, you can simply consult the notebook to recall when and how to use various statistical tests. Many, even most, of you will use these techniques in your future careers. Those of you who don't will still use the ways of thinking that we develop.
- You have four drops, or "skips", for each of homework, quizzes, and attendance. Remember that you will have times when you must go on a field trip for another class, or when you feel sick. That is what these "skips" are for, so don't waste them on unexcused absences.
- Have fun with this stuff! There is no good reason not to! If you feel worried, let me assure you: You CAN do this. ☺