Probability and Statistics

Math 1530-960 – 3 Credit Hours – Fall 2020

Instructor: Dr. Nicole Lewis
Email: lewiscn2@etsu.edu

Class Time and Place: MW 1:40 - 3:00 pm Online via Zoom

Office Hours: There will be no physical office hours. However, Zoom office hours well be held. I will hold drop-in Zoom office hours on Tuesdays from 10:00 - 11:00 am. If you cannot make it during that time, please email me and we can set up a time that works best for both of us. **I strongly encourage students to email me as frequently as necessary.** Students should also consider the 'Discussion Boards' for group communication about particular topics.

Course Web Page:

- http://faculty.etsu.edu/lewiscn2/math1530.aspx

Prerequisites: Two years of high school algebra.

Course Objectives: To develop a basic understanding of probability and statistics and how they relate to the world around us.

Learning Outcomes: Upon successful completion of this course, students should be able to

- Recall basic statistical terms with the ability to express them in the correct context
- Employ appropriate methods for collecting data in a laboratory experiment
- Apply basic concepts of probability including properties of sampling distributions, the normal distribution, the binomial distribution, and the chi-square distribution.
- Select and apply appropriate descriptive and inferential statistical methods for univariate and bivariate data
- Use statistical software to apply descriptive and inferential statistical analyses
- Effectively explain findings from graphical displays, descriptive statistics, and inferential statistical analyses

Student Success:

- **S**tudy and read before attending the lectures. Keep up with the course.
- Devote some **T**ime to studying each day, rather than a large amount of time once a week.
- Take an **A**ctive role in learning. Come to class and participate.
- **T**utor each other. If you feel that you are lost help is out there; see your instructor/tutor early. Don't wait until the last minute!
- **A**lways talk to me before you decide to stop attending the lecture or drop the class.

Student Disability Services: Students requesting special assistance due to a learning disability must show proof that they have properly registered their disability. Call Disability Services at 439-4841 for information.

Text Package:

- CP ETSU Basic Practice of Statistics by David S. Moore, William I. Notz, and Mickheal A. Flingner, 8^{th} Ed., SaplingPlus Package W.H. Freeman.
- This package contains
  - SaplingPlus which includes standard interactive ebook, extensive re- sources and is available via at https://www.saplinglearning.com/ibiscms/login/.

Class Materials: Make sure that you have access to D2L. Class notes and other materials are provided and are available on D2L https://elearn.etsu.edu/. **You are expected to read and digest material in the textbook.**

Technology Required:

- A calculator that does basic math is sufficient.
- Minitab, a statistical software package, will be introduced and used in the class. Make sure that you can access Minitab from AWS Appstream 2.0 via https://etsu.awsapps.com/start. Please refer to D2L for information and steps on accessing Minitab. Most computers on the ETSU campus have Minitab loaded on them.
- **If you have technical difficulties with Minitab, D2L, and/or Sapling, you must notify me at least 48 hours before the assignment is due to receive consideration for an extension.**
- The instructor will use email to communicate important information to both individual students and the class as a whole. Therefore, the instructor expects students to check their ETSU email account on a daily basis.

Tutoring:

Center for Academic Achievement (CFAA): Provides free individual tutoring seven days a week. The tutoring for Fall 2020 will be online. Visit their website (http://www.etsu.edu/uged/cfaa/defaul for instructions about how to schedule and participate in an online tutoring session. For assistance you can contact their front desk on the first floor of the Sherrod Library in room 144 via phone (423-439-7111) or email (learning@etsu.edu).

COVID Safety:

All members of the ETSU community, including visitors, are required to wear face coverings in public spaces. Read COVID-19 Policy on Face Coverings (https://www.etsu.edu/policies/health-safet for details. Wearing a mask that covers your nose and mouth communicates the care and respect you have for yourself, the care and respect you have for those you live with, and the care and respect you have for other members of this community. The best evidence we have, from public health professionals, is that wearing masks is one of the best ways to protect against the spread of COVID-19 and other airborne illnesses. For more information on ETSUs COVID procedures and information, please visit https://www.etsu.edu/coronavirus/.

Course Work:

Item	Points	Percentages
Learning Curve Assignments	50	5%
Homework	200	20%
3 Exams	450	45%
Capstone Project	100	10%
Final Exam	200	20%
Total	1000	100%

- Learning Curve Assignments: The learning curve assignments are available on **Sapling-Plus**. The assignments account for 5% (50 points) of your final grade. You have unlimited attempts to complete each assignment but must achieve the goal to receive credit on that assignment. There is a total of 17 learning curves. Each chapter covered in the textbook has a corresponding learning curve. The chapters are 1, 2, 3, 4, 5, 8, 9, 12, 13, 15, 16, 17, 18, 20, 21, 22, and 25. All learning curves must be due by Sunday, Dec. 6, 2020 at 11:59PM.
- Homework will be given frequently during the semester. Homework will be assigned usually one week in advance. Homework will be conducted on the **SaplingPlus** website. The homework will account for 20% (200 points) of your final grade.
- Three Exams will be given during the semester that will cover about 5 chapters. Review problems and solutions will be posted on D2L. Only a calculator that does basic math is allowed. I will provide any other material needed such as a formula sheet or tables. This course requires the use of LockDown Browser for online exams. More information about the LockDown Browser can be found on D2L. Watch this video to get a basic understanding of LockDown Browser:
  https://www.respondus.com/products/lockdown-browser/student-movie.shtml.
  If for any reason you cannot take the exam during the time period allowed, you must email me as soon as possible. Each exam accounts for 15% (150 points) of your final grade.
- Capstone Project: A Minitab assignment worth 100 points will be handed out. More details of this assignment will be given before it is assigned.

- A **comprehensivefinal examination will be given on Monday, December 7 from 1:20 - 3:20 pm**. The Final Examination will count 20% (200 points) of your final grade. For **extremely low scores on the Final Examination (less than 80 points or less than 40%)**, the student will be assigned a semester grade of F.

Communication Bonus: In order to get these bonus points, I require that you email me weekly. In this email, you need to tell me two things: (1) what topics and/or concepts are you struggling with and (2) something positive that happened to you during the week or something interesting. The first email (week of Aug. 24, 2020) just needs to be an email introducing yourself. All emails must be sent by Friday 11:59 pm each week. **Please see D2L (Course Content → Detailed Syllabus → Communication with Dr. Lewis) for email expectations.** There will be a total of 14 emails that you should send to earn all 50 bonus points. Each email is worth about 3.5 points

Grading Scale:

The grade will be based on a possible 1000 points. The scale follows:

Grade	Points
A	950 - 1000
A-	900 - 949
B+	880 - 899
B	820 - 879
B-	800 - 819
C+	780 - 799
C	720 - 779
C-	700 - 719
D+	650 - 699
D	600 - 649
F	Less than 600, Less than 40% on Final, or Academic Misconduct

Topics:

- Definitions and Producing Data
- Graphical Displays and Descriptive Statistics
- Simple Linear Regression
- Probability
- Normal Theory Tests and Confidence Intervals
- Chi-Square Tests