Course Syllabus

Course Prefix, Number, and Title:
MATH 281, Introduction to Statistics, D01

Credits:
3 Credits

University Name:
Dakota State University

Academic Term/Year:
Fall 2021

Last date to Drop and receive 100% refund:
Thursday, 02 September 2021

Last date to Withdraw and earn a grade of 'W':
Friday, 05 November 2021

Course Meeting Time and Location:
MWF 01:00 – 01:50 pm TCB 203

Instructor Information:

Name:
Dr. Jeffrey S. Palmer

Office:
Ruth Habeger Science Center 146I

Phone Number(s):
605-256-5190

Email Address:
jeff.palmer@dsu.edu

Office Hours:
T 09:00-09:50 am, MTWF 11:00-11:50 am, WF 08:30-08:50 am, or by appointment ----- For this semester, Dr. Palmer will require you to wear a mask if you want to visit with him in his OFFICE. Alternatively, when you have questions about course policy or content, please email them to me at jeff.palmer@dsu.edu Clearly state your question and if it is a question regarding course content explain your approach to the problem. Expect that in most cases I will respond to your question with a hint, suggestion, clarification, or guiding question - it is my goal to guide you through the problem not to provide worked out examples! Your email should be addressed to Dr. Palmer or Professor Palmer and should be of a professional nature. If we cannot adequately address your question through email, then we can schedule a ZOOM session together.

Approved Course Description:

Catalog Description:

A study of descriptive statistics including graphs, measures of central tendency and variability and an introduction to probability theory, sampling and techniques of statistical inference with an emphasis on statistical applications (2021-2022 DSU Undergraduate Catalog).

Additional Course Information:

None

Prerequisites:

Course Prerequisite(s):

Math 114 or Math 115 or Math 121 or Math 123.

Technology Skills:

This course will make use of MyStatLab, Microsoft Excel, and other appropriate tools.

Course Materials:

Required Textbook(s):

Statistics: The Art and Science of Learning from Data, Fourth Edition, by Agresti, Franklin, and Klingenberg (Pearson / Addison Wesley).

This text (on-line version) and MyStatLab can be accessed using an access code that is available for sale at http://pearsonmylabandmastering.com or from the DSU Bookstore. The access code is required, while the hardcopy textbook is optional. Once you have purchased the access code, you must sign up for this course at http://pearsonmylabandmastering.com using the Course ID palmer36133.

Required Supplementary Materials:

None, however, students may use a scientific calculator.

Optional Materials:

None

Student Support:

DSU Knowledge Base:

The DSU Knowledge Base contains links and resources to help students by providing information about the following topics: User Accounts & Passwords, Academic Tools & Resources, Software & Apps Support, WiFi & Network Access, Campus Emergency Alert System, Campus Printing, IT Security & Safe Computing, and the Support Desk (which is there to help both on and off-campus students). The Knowledge Base can be accessed through the link below:

- DSU Knowledge Base

D2L Support for Students:

The D2L Support for Students site is designed to provide DSU students a D2L support resource center that contains user guides, tutorials, and tips for using the D2L learning environment. The D2L Support for Students site can be accessed through the link below:

- DSU D2L Support Resources for Students

Course Delivery and Instructional Methods:

This course is an introduction to the collection, organization, analysis, and interpretation of data. Topics to include descriptive statistics, probability, and inferential statistics. Our class time will be devoted to lecture and discussion of the material in Chapters 1 - 10 of your textbook - certain sections may be skipped and certain supplementary material may be introduced. We will primarily use Excel to assist us with our exploration and analysis of statistical concepts and ideas although other software and applets may be used as well.

Classroom Policies:

Attendance and Make-up Policy:

While there is no policy of required attendance of lectures in this course, it is unlikely that you will be able to earn a good grade without regularly attending the lectures. When you miss class, whatever the reason, you really miss important material from three lectures not one. Obviously, the lesson covered that day is missed but you also miss out on important connections of that day's material with the previous day's lesson and the following day's lesson. Also, if you are on academic probation or are an at-risk student, you are required to attend every class meeting. You are expected to arrive at lecture on time and to remain for the entire class period. If for some reason you must arrive late or leave early, please do so quietly. Talking or other behavior that disrupts lecture will not be tolerated. If for any reason I am late for the start of class and you have not received official notification that the class has been canceled, you are expected to remain for 15 minutes before "assuming" that the lecture has been canceled for the day. Above all else, show respect for your classmates. Your attendance, behavior, and participation in the class have effects on others beside yourself.

Accessibility Statement:

Dakota State University strives to ensure that physical resources, as well as information and communication technologies, are accessible to users in order to provide equal access to all. If you encounter any accessibility issues, you are encouraged to immediately contact the instructor of the course and Dakota State University's ADA Office, which will work to resolve the issue as quickly as possible.

DSU's ADA Office is located in the Learning Engagement Center and can be contacted by calling 605-256-5121 or emailing dsu-ada@dsu.edu. Students seeking ADA accommodations (such as non-standard note taking or extended time and/or a quiet space taking exams and quizzes) can log into the DSU portal to access https://portal.sdbor.edu/dsu-student/student-resources/disability-services/Pages/default.aspx/ for additional information and the link to the Disability Services Request Form. You will need to provide documentation of your disability and the ADA Coordinator must confirm the need before officially authorizing accommodations.

Academic Honesty Statement:

Cheating and other forms of academic dishonesty run contrary to the purpose of higher education and will not be tolerated in this course. Please be advised that, when the instructor suspects plagiarism, the Internet and other standard means of plagiarism detection will be used to resolve the instructor's concerns. The South Dakota Board of Regents Student Academic Misconduct Policy can be found here: SDBOR Policy 2.33.

All forms of academic dishonesty will result in a grade of 0 for the assignment, project, quiz, or exam in question. In addition, I will forward evidence of cheating to the Academic Integrity Board

on campus for their consideration. Students found guilty of a second offense of academic dishonesty in this class will also receive a course grade of F.

Communication and Feedback:

Preferred Email Contact Method:

Please send all e-mail communications to my jeff.palmer@dsu.edu account. Your email should be addressed to Dr. Palmer or Professor Palmer and should be composed in a professional manner.

Email Response Time:

Typically, I access and read email once per day Monday through Friday when classes are in session. I generally respond to email messages within 48 hours, excluding weekends and holidays. For this semester, I will also be checking email during my scheduled Office Hours.

Feedback on Assignments:

Feedback from assignments is almost always provided within 1 week, excluding holidays, of the assignment due date unless otherwise noted.

Requirements for Course Interaction:

Lecture time is at a premium, so it must be used efficiently. You cannot be "taught" everything in the classroom. It is your responsibility to learn the material. Most of this learning must take place outside the classroom. In order to succeed, you must do your homework assignments on a regular basis. I expect that, for an average student, each will take approximately two or three hours of solid time to complete. It is critical that you not only solve problems but that you understand what you did and why. Expect this course to be both extremely challenging and yet fair. I subscribe to the philosophy that if challenged, students will respond to meet that challenge.

Student Learning Outcomes:

As you explore the concepts, ideas and applications encountered in this course do not be content to simply get an answer. Rather, you should constantly be asking yourself questions. What am I doing? Why am I doing this? What does this mean? I hope you will develop knowledge of, skill in, and understanding of those fundamental calculations that are needed in your mathematical toolbox. Mathematics is not moving symbols around on a piece of paper and obtaining the correct answer. You should always be asking yourself what you are doing and why you are doing it. We will use our mathematical toolbox to examine applied problems from a variety of disciplines. Applications from biology, chemistry, physics, business, economics, and other disciplines form an integral part of the course. Mathematics is not a cookbook discipline; the ultimate validation of your skills and understanding is reflected in your ability to develop solutions to problems that are new and unfamiliar to you. You will encounter, in course assignments and evaluations, activities that require problem solving and critical thinking. Finally, I hope that you will come to understand and appreciate both the power and the shortcomings of technology, particularly the computer, as a tool for understanding mathematical concepts and for solving applied problems. In conclusion, as a student in this course you are expected to

- learn, practice, and master basic skills
- understand important concepts
- apply your knowledge to other disciplines
- engage in problem solving and critical thinking
- use technology as an appropriate tool

This course satisfies Regental General Education Goal 5: Students will understand and apply fundamental mathematical processes and reasoning.

Student Learning Outcome 1: Students will use mathematical symbols and mathematical structure to model and solve real world problems. Assessment: Homework, quizzes, and exams

Student Learning Outcome 2: Students will demonstrate appropriate communication skills related to mathematical terms and concepts. Assessment: Homework, quizzes, and exams

Evaluation Procedures:

Assessments:

There are four examinations (240 total points) scheduled for this course – see the Tentative Course Outline and Schedule below. Each exam will be cumulative, covering material from the beginning of the course through the preceding Friday. Exams may consist of both an in-class and/or a take-home component at the discretion of the instructor. If you miss an exam for a valid reason you may be allowed to make up that exam or replace it with your score on the Final Exam (Exam 4) at the discretion of the instructor.

Final Examination:

Monday, 13 December 2021, 01:00 – 03:00 pm

Performance Standards and Grading Policy:

Your grade will be calculated using your accumulated point total (240 possible). The grading scale is

>85%	204 – 240 points	A
>70%	168 – 203 points	B
>60%	144 – 167 points	C
>50%	120 – 143 points	D
<50%	000 – 119 points	F

Students near a cutoff may receive a higher grade at the discretion of the instructor.

Student Verification Statement and Proctoring Policy:

Federal law requires that universities verify the identity of students when course materials and/or course assessment activities are conducted either partially or entirely online. A student's Desire2Learn (D2L) login and password are intended to provide the student with secure access to course materials and are also intended to help the university meet this federal mandate. Some DSU Faculty also require the use of a proctor for exams in distance-delivered (Internet) courses and this requirement provides a second level of student identity verification. Students are responsible for any proctoring fees, if applicable. Finally, an instructor who uses web conferencing technology may require students to use a webcam during exams, as another means of student identity verification through voice and visual recognition. Examinations in this course will be proctored by the course instructor.

Tentative Course Outline and Schedule:

Date	Day	Topic
23-Aug-21	M	Introduction and Objectives 1.2 Sample Versus Population

24-Aug-21	T	
25-Aug-21	W	1.2 / 2.1
26-Aug-21	R	
27-Aug-21	F	2.1 Different Types of Data
30-Aug-21	M	2.2 Graphical Summaries of Data
31-Aug-21	T	
01-Sep-21	W	2.2 / 2.3
02-Sep-21	R	LAST DAY TO ADD/DROP A FULL SEMESTER CLASS
03-Sep-21	F	2.3 Measuring the Center of Quantitative Data
06-Sep-21	M	No Class - Labor Day
07-Sep-21	T	
08-Sep-21	W	2.4 Measuring the Variability of Quantitative Data
09-Sep-21	R	
10-Sep-21	F	2.4 / 2.5
13-Sep-21	M	2.5 Using Measures of Position to Describe Variability
14-Sep-21	T	
15-Sep-21	W	3.1 The Association Between Two Categorical Variables
16-Sep-21	R	
17-Sep-21	F	3.1 / 3.2
20-Sep-21	M	3.2 The Association Between Two Quantitative Variables
21-Sep-21	T	
22-Sep-21	W	3.3 Predicting the Outcome of a Variable
23-Sep-21	R	
24-Sep-21	F	EXAM 01
27-Sep-21	M	3.3 / 5.1
28-Sep-21	T	
29-Sep-21	W	5.1 How Probability Quantifies Randomness
30-Sep-21	R	
01-Oct-21	F	5.2 Finding Probabilities
04-Oct-21	M	5.2 / 6.1
05-Oct-21	T	
06-Oct-21	W	6.1 Summarizing Possible Outcomes and Their Probabilities

07-Oct-21	R	
08-Oct-21	F	6.2 Probabilities for Bell-Shaped Distributions
11-Oct-21	M	No Class - Native American Day
12-Oct-21	T	
13-Oct-21	W	6.2 / 6.3
14-Oct-21	R	
15-Oct-21	F	6.3 Probabilities When Each Observation Has Two Possible Outcomes
18-Oct-21	M	7.1 How Sample Proportions Vary Around the Population Proportion
19-Oct-21	T	
20-Oct-21	W	7.1 / 8.1
21-Oct-21	R	
22-Oct-21	F	EXAM 02
25-Oct-21	M	8.1 Point and Interval Estimates of Population Parameters
26-Oct-21	T	
27-Oct-21	W	8.2 Constructing a Confidence Interval to Estimate a Population Proportion
28-Oct-21	R	
29-Oct-21	F	8.2 / 9.1
01-Nov-21	M	9.1 Steps for Performing a Significance Test
02-Nov-21	T	
03-Nov-21	W	9.2 Significance Tests About Proportions
04-Nov-21	R	
05-Nov-21	F	LAST DAY TO WITHDRAW
08-Nov-21	M	9.2 / 10.1
09-Nov-21	T	
10-Nov-21	W	10.1 Categorical Response: Comparing Two Proportions
11-Nov-21	R	
12-Nov-21	F	7.2 How Sample Means Vary Around the Population Mean
15-Nov-21	M	7.2 / 8.3
16-Nov-21	T	
17-Nov-21	W	8.3 Constructing a Confidence Interval to Estimate a Population Mean
18-Nov-21	R	
19-Nov-21	F	EXAM 03

22-Nov-21	M	9.3 Significance Tests About Means
23-Nov-21	T	
24-Nov-21	W	No Class - Thanksgiving Holiday
25-Nov-21	R	No Class - Thanksgiving Holiday
26-Nov-21	F	No Class - Thanksgiving Holiday
29-Nov-21	M	9.3 / 10.2
30-Nov-21	T	
01-Dec-21	W	10.2 Quantitative Response: Comparing Two Means
02-Dec-21	R	
03-Dec-21	F	Catch Up and Review
06-Dec-21	M	Wrap Up and Conclusions
07-Dec-21	T	
08-Dec-21	W	
09-Dec-21	R	
10-Dec-21	F	
13-Dec-21	M	EXAM 04
14-Dec-21	T	

Freedom in Learning Statement:

Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. It has always been the policy of Dakota State University to allow students to appeal the decisions of faculty, administrative, and staff members and the decisions of institutional committees. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.

The instructor reserves the right to amend this syllabus.

COVID-19 Policies – during this pandemic, students must abide by all DSU policies and public health rules put forward by the state of South Dakota, the Board of Regents, and Dakota State University to promote the health and well-being of fellow students and your own personal self-care.

As with other disruptive behaviors, we have the right to dismiss you from the classroom (Zoom and physical), or other class activities if you fail to abide by these COVID-19 policies. You will also be alerted to any possible course format changes in response to DSU decisions about COVID-19 during the semester.