Course Syllabus – MATH 281

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

Credits:
3 Credits

University Name:
Dakota State University

Academic Term/Year:
Fall 2019

Last date to Drop and receive 100% refund:
Thursday, 05 September 2019

Last date to Withdraw and earn a grade of 'W':
Friday, 08 November 2019

Course Meeting Time and Location:
Section 01: MWF 02:00-02:50 pm, C. Ruth Habeger Science Center 113

Instructor Information:

Name:
Dr. Jeffrey S. Palmer

Office:
HSC 146I

Phone Number(s):
605.256.5190

Email Address:
jeff.palmer@dsu.edu

Office Hours:
MWF 08:30-08:50 am, T 08:30-09:50 am, MTWF 11:00-11:50 am, MW 03:00-03:30 pm, or by appointment

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 (2019-2020 DSU Undergraduate Catalog).

Additional Course Information:

Prerequisites:

Course Prerequisite(s):

Math 102 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 palmer33821.

Required Supplementary Materials:

None, however, students are allowed to use a scientific calculator.

Optional Materials:

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 particular 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 may 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.

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.

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 daily 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

Regent General Education Goal #5:

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 60-point examinations 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 either make up that exam or replace it with your score on the Final Exam (Exam 04) at the discretion of the instructor.

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Assessment: Homework, quizzes, and exams

Final Examination:

December 13, 2019

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:

Examinations in this course will be proctored by the course instructor.

Tentative Course Outline and Schedule:

Date	Day	Topic
26-Aug-19	M	Introduction and Objectives / 1.2 Sample Versus Population
27-Aug-19	T	
28-Aug-19	W	1.2 / 2.1
29-Aug-19	R	
30-Aug-19	F	2.1 Different Types of Data
02-Sep-19	M	No Class - Labor Day
03-Sep-19	T	
04-Sep-19	W	2.2 Graphical Summaries of Data
05-Sep-19	R	Last Day to Add/Drop a Full Semester Class
06-Sep-19	F	2.2 / 2.3
09-Sep-19	M	2.3 Measuring the Center of Quantitative Data
10-Sep-19	T	
11-Sep-19	W	2.4 Measuring the Variability of Quantitative Data
12-Sep-19	R	
13-Sep-19	F	2.4 / 2.5
16-Sep-19	M	2.5 Using Measures of Position to Describe Variability
17-Sep-19	T	
18-Sep-19	W	3.1 The Association Between Two Categorical Variables
19-Sep-19	R	
20-Sep-19	F	3.1 / 3.2
23-Sep-19	M	3.2 The Association Between Two Quantitative Variables
24-Sep-19	T	
25-Sep-19	W	3.3 Predicting the Outcome of a Variable
26-Sep-19	R	
27-Sep-19	F	EXAM 01
30-Sep-19	M	3.3 / 5.1
01-Oct-19	T	
02-Oct-19	W	5.1 How Probability Quantifies Randomness
03-Oct-19	R	
04-Oct-19	F	5.2 Finding Probabilities
07-Oct-19	M	5.2 / 6.1
08-Oct-19	T	
09-Oct-19	W	6.1 Summarizing Possible Outcomes and Their Probabilities
10-Oct-19	R	

11-Oct-19	F	6.2 Probabilities for Bell-Shaped Distributions
14-Oct-19	M	No Class - Native American Day
15-Oct-19	T	
16-Oct-19	W	6.2 / 6.3
17-Oct-19	R	
18-Oct-19	F	6.3 Probabilities When Each Observation Has Two Possible Outcomes
21-Oct-19	M	7.1 How Sample Proportions Vary Around the Population Proportion
22-Oct-19	T	
23-Oct-19	W	7.1 / 8.1
24-Oct-19	R	
25-Oct-19	F	EXAM 02
28-Oct-19	M	8.1 Point and Interval Estimates of Population Parameters
29-Oct-19	T	
30-Oct-19	W	8.2 Constructing a Confidence Interval to Estimate a Population Proportion
31-Oct-19	R	
01-Nov-19	F	8.2 / 9.1
04-Nov-19	M	9.1 Steps for Performing a Significance Test
05-Nov-19	T	
06-Nov-19	W	9.2 Significance Tests About Proportions
07-Nov-19	R	
08-Nov-19	F	Last Day to Withdraw / 9.2 / 10.1
11-Nov-19	M	No Class - Veterans Day
12-Nov-19	T	
13-Nov-19	W	10.1 Categorical Response: Comparing Two Proportions
14-Nov-19	R	
15-Nov-19	F	7.2 How Sample Means Vary Around the Population Mean
18-Nov-19	M	7.2 / 8.3
19-Nov-19	T	
20-Nov-19	W	8.3 Constructing a Confidence Interval to Estimate a Population Mean
21-Nov-19	R	
22-Nov-19	F	EXAM 03
25-Nov-19	M	9.3 Significance Tests About Means
26-Nov-19	T	
27-Nov-19	W	No Class - Thanksgiving Holiday

28-Nov-19	R	No Class - Thanksgiving Holiday
29-Nov-19	F	No Class - Thanksgiving Holiday
02-Dec-19	M	9.3 / 10.2
03-Dec-19	T	
04-Dec-19	W	10.2 Quantitative Response: Comparing Two Means
05-Dec-19	R	
06-Dec-19	F	Catch Up and Review
09-Dec-19	M	Wrap Up and Conclusions
10-Dec-19	T	
11-Dec-19	W	
12-Dec-19	R	
13-Dec-19	F	EXAM 04
16-Dec-19	M	
17-Dec-19	T	
18-Dec-19	W	

The instructor reserves the right to amend this syllabus.

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.