Course Syllabus

Course Prefix, Number, and Title:
Math 381:D30 – Introduction to Probability and Statistics

Credits:
3 Credit Hours

University Name:
Dakota State University

Academic Term/Year:
Fall 2018

Last date to Drop and receive 100% refund:
Thursday August 30

Last date to Withdraw and earn a grade of 'W':
Friday November 2

Course Meeting Time and Location:
Online course

Instructor Information:

Name:
Richard Wicklein, Ph.D.

Office:
Habeger Science Center 146L

Phone number(s):
605-256-5184

Email address:
Richard.Wicklein@dsu.edu

Office hours:
Monday and Wednesday from 2-4pm.
Tuesday and Thursday from 9:30-10:45 am and 2:30-4:00pm.

If you'd like to arrange other office hours and/or a phone call, just send me an email and we will schedule a time that works for both of us. Appointments must be made at least 24 hours in advance.

Catalog description:
Introduction to probability theory, discrete and continuous distributions, sampling distributions and the Central Limit Theorem with general principles for statistical inference and applications of random sampling to hypothesis testing, confidence limits, correlation and regression.

Prerequisites:

Course prerequisite(s):
MATH 125

Technology skills:
This course will make use of D2L, Microsoft Excel, and other appropriate tools.

Course Materials:

Required textbook(s):
Probability and Statistical Inference. Hogg, Tanis, Zimmerman. 9th Ed.
ISBN: 0321923278

Required supplementary materials:
A calculator (e.g., TI-83+, TI-84, TI-84+, or TI-86) will be useful.

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:

Slides for select topics will be provided with accompanying videos. Some concepts will not have an accompanying lecture video, so students will also be expected to read the textbook when applicable.

Numerous short "activities" will be collected to assess student understanding of the course material. In addition, the course will regularly collect written homework. Discussion boards will also be used.

This course is running concurrently with a classroom section of the course. The instructor intends to keep both sections on the same pace. As such, course materials will not all be available from the start of the course and will become available as the course continues.

Classroom Policies:

ADA Statement:

If you have a documented disability and/or anticipate needing accommodations (e.g., non-standard note taking, extended time on exams or a quiet space for taking exams) in this course, please contact the instructor. Also, please contact Dakota State University's Disabilities Office by calling 605-256-5121 or emailing Success.Center@dsu.edu as soon as possible. The DSU website contains additional information and the form to request accommodations found at https://portal.sdbor.edu/dsu-student/student-resources/disability-services/Pages/default.aspx/. (Students must log into the DSU portal to access this page.) You will need to provide documentation of your disability. The Disabilities Office must confirm the need for accommodations before officially authorizing them.

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, and will not be allowed to drop or withdraw from the course.

Communication and Feedback:

Preferred Email Contact Method:

Please send all e-mail communications to my Richard.wicklein@dsu.edu account. Please do not send me e-mail through D2L.

Email Response Time:

I check e-mail daily, except possibly on Saturdays. I will return all e-mail communications within 24 hours on week days. Response time may vary on weekends and holidays.

Feedback on Assignments:

For written assessments (homework, quizzes, projects, or exams) I will try to return graded work or solutions within one week. If I expect a delay, I will notify you.

Requirements for Course Interaction:

Interactions between students should be civil and use appropriate language. Further guideline are provided in the section in "Assessments" under the subsection on discussion board posts.

Student Learning Outcomes:

Course Student Learning Outcomes

Students completing this course will be able to

1. Use the language and terminology associated probability and basic statistics.

2. Use basic counting techniques (multiplication rule, combinations, permutations) to compute probability.
3. Compute conditional probabilities directly and using Bayes' theorem, and check for independence of events.
4. Set up and apply statistical concepts to distributions with a discrete random variable. In particular, students will know the Bernoulli, binomial, geometric and Poisson distributions.
5. Set up and apply statistical concepts to distributions with a continuous random variable. In particular, students will know the properties of uniform, exponential, gamma, chi-square, and normal distributions.
6. Compute expectation and variance.
7. Understand the law of large numbers and the central limit theorem.

Evaluation Procedures:

Assessments:

Activities:

Each week there will be an activity. The goal of these activities is to practice working with the new concepts from the topic (as well as a chance for me to give you feedback on your understanding of the new material). With that, these problems are graded more on completion that correctness – that is, this is your chance to really see how much you know before tackling the homework. Your lowest activity score will be dropped. No late activities will be accepted.

Discussion board posts:

Periodically discussion topics will be posted. These may be extra problems, or other questions related to the course material. Each student is expected to respond to the post and respond to another student's response. Each post will include the grading rubric for the post.

All posts must be respectful to other students and the instructor. Use of profanity and/or insulting or harassing remarks will not be tolerated in the discussion posts, email, or telephone communications. The first incident will result in a score of 0 for that discussion. A second incident will result in a 0 on the discussion portion of the final grade. A third incident will result in a grade of an F in the course.

Homework:

Homework assignments will be assigned periodically (about every 2 weeks). These will be posted to D2L at least one week prior to the due date. These problems will be due at 11:59pm on the due date. Points earned for Homework will go towards the Homework portion of your final grade (See Grading section). Each homework set will be weighted equally for the purposes of grading. Late homework may be submitted prior to the posting of solution sets to D2L. However, a 25% penalty will be applied.

Submitted homework must be submitted as a single PDF file. Options for Submitting Homework:
- If you have a tablet computer, you may write your solutions directly on the homework document using OneNote or a similar program(making sure to save it as a new document) and upload them to the Dropbox

- You may use apps such as CamScanner or the built in feature on an iPhone to create a PDF.
- If you have access to a scanner, you may scan your solutions and upload them to the Dropbox

Exams:

There will be three exams. The first two exams will be 90 minutes (see the schedule for the topics covered). The third exam will be 120 minutes. This exam will be cumulative and include material from the entirety of the course. All exams must be proctored (see the guidelines for securing a proctor and proctoring policy below). No notes are permitted on exams. Students will be permitted to use a handheld calculator that cannot access the internet, but no other resource will be permitted. Each exam will be weighted equally in the calculation the final grade. Exams will be sent to proctors on Monday of the exam week. Each student must schedule a time with his/her proctor to take the exam. The exam must be completed by the end of the day on Friday unless a student's proctor is willing to proctor the exam on Saturday. In which case the exam is due on Saturday.

Performance standards and grading policy:

Breakdown of scores for the course:	Percentages
Homework	30%
Discussion Board Posts	5%
Activities	20%
Exams	45%

Grades will be assigned according to the following rule (rounded to the nearest percentage point)

Letter Grade	Percentages
A	90 – 100%
B	80 – 90%
C	70 – 80%
D	60 – 70%
F	0 – 60%

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.

Securing a Proctor – Internet Students:

All exams must be proctored and it is the student's responsibility to secure a suitable proctor for this course. A proctor is a person that administers exams for this course (ensuring the integrity of the course). Students now submit their proctor form online at https://secure.dsu.edu/apps/proctor/ .

The student fills out the proctor form and if you are using a Board of Regents (a SD university or Center) testing center I will get your proctor information when you submit the form. If you are using an individual or a non - Board of Regents testing site then under the Proctor Information section you will need to choose "Other" then fill in the proctors information and the Extended Programs office will verify that the proctor meets the guidelines (usually by contacting them through email) and once the proctor is approved I will get an email from the Extended Programs office (students are sent an email from the Extended Programs office once the proctor is approved by their office, I always accept their approval). Note, if you are going to take your exam at a SD public University or Testing Center then it is expected that **you will use the testing center on campus and not other individuals on campus** (the testing centers have been setup on campus so that others are not put in situations where they need to proctor exams).

Succeeding in Math 381:
Learning is a social and active adventure. We learn by actively thinking, discussing, writing, and doing! There are several strategies you can use to study/succeed in this course.

Talk! (or at least type):
Research about learning shows that the act of talking through an idea improves understanding. Not only does working with fellow classmates allow you to practice communicating your mathematical reasoning, but peers are often able to provide additional insight and explanation to problems and difficult concepts. In some cases, since the concepts are also new to your classmates, they may be better at explaining a concept than I am! If possible, I encourage you to organize a group of classmates to work and study with.

Test Yourself:
Take time after each section (or activity) and ask yourself:
- What was the 'big topic' for this section?
- What do I need to know to understand the concept, question, problem, or technique?
- What concepts can I 'put into my own words' that makes sense to me? Can I verify that my understanding is accurate?
- How does the new information/topic/technique relate to what we have already learned in the course? How do these topics 'fit' together? Is there a previous section that this session built on?

Stay Organized:
- Use a virtual or physical notebook/binder to organize course materials.

- Take notes while watching videos, while going through slides, and while your complete homework.
- Check your e-mail and D2L frequently for course announcements.
- Be aware of deadlines (do not wait until the last minute to work on an assignment/project)

Tentative Course Outline and Schedule:
The instructor reserves the right make reasonable changes to the schedule of the course.

Week	Sections	Assignments, Exams, etc.
Aug. 20 -Aug. 25	Chapter 1	Activity 1
Aug. 27 – Aug.31	2.1 -2.3	Activity 2
Sept. 3- Sept. 7	2.4-2.5, Discrete Simulations	Activity 3, Homework 1
Sept. 10- Sept 14	3.1-3.3	Activity 4
Sept. 17 -Sept 21	3.4-3.5	Activity 5, Homework 2
Sept 24- Sept 28	Continuous Simulations	Exam 1
Oct. 1 – Oct. 5	4.1-4.3	Activity 6
Oct. 8 – Oct. 12	4.4-4.6	Activity 7, Homework 3
Oct. 15 – Oct. 19	5.1,5.2	Activity 8
Oct. 22 – Oct. 26	6.1-6.3	Activity 9, Homework 4
Oct. 29 – Nov. 2		Exam 2
Nov. 5 -Nov. 9	6.4-6.5	Activity 10
Nov. 12- Nov. 16	6.6-6.8	Activity 11, Homework 5
Nov. 19 – Nov. 23	7.1	
Nov. 26 -Nov. 30	7.2-7.4	Activity 12, Homework 6
Dec. 3- Dec. 4	7.6	
Dec.6 – Dec. 12		Exam 3