

CROSS-LISTED AS BUS 215 / HSI 215 / NRS 215 Statistics

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Electronic Office Hours: I will respond to email and discussion questions in the evenings (usually after 6 PM). Feel free to reach out at any time, and I will try to respond within 24 hours.

Textbook: There will be no physical textbook to purchase for this course. There will be selected readings from the Online Statistics Textbook (found at *Textbook* <http://onlinestatbook.com/>)

Software:

- R, a free Statistical software package found at <http://www.r-project.org/> . We will use R for a majority of calculations for this course (which will be much better than by hand).
- Microsoft Excel. The majority of the data provided in this course will come from Excel. While there are workarounds to this, it will be easiest if you have a functioning version of Excel on your computer. Please notify me if this is an issue.

Communicating With the Instructor:

This course uses a “three before me” policy in regards to student to faculty communications. When questions arise during the course of this class, please remember to check these three sources for an answer before asking me to reply to your individual questions:

1. Course syllabus
2. Announcements in Blackboard
3. The “Week X Questions and Discussion” discussion board

This policy will help you in potentially identifying answers before I can get back to you and it also helps your instructor from answering similar questions or concerns multiple times.

If you cannot find an answer to your question, please first post your question to the “Week X Questions and Discussion” discussion board. Here your question can be answered to the benefit of all students by either your fellow students who know the answer to your question or the instructor. You are encouraged to answer questions from other students in the discussion forum when you know the answer to a question in order to help provide timely assistance. I will try to respond to questions in the evenings, but if a question goes unanswered over 24 hours, email me to let me know it is there.

If you have questions of a personal nature such as relating a personal emergency, questioning a grade on an assignment, or something else that needs to be communicated privately, you are welcome to contact me via email. I will usually respond within 24 hours.

If you have a question about the technology being used in the course, please contact the Doane University Help Desk for assistance (email and phone found at <http://www.doane.edu/about-doane/offices/its/help-and-support>). Note that the Help Desk can help with things like installing R, but questions on how to use R need to come to me.

Course Catalog Description:

An introductory course to the use of statistics and study designs in biology. Upon successful completion of this course, students will be able to design experimental, quasi-experimental and observational studies that will meet regulatory guidelines; collect, analyze, and interpret data using appropriate statistical tools.

Course Objectives: The main goal of this course is to introduce students to the subject of statistics, emphasizing on uses in all fields of biology. Upon completion of the course, students should expect and be expected to:

- Identify different types of data, and how it can be collected
- Recognize and design simple experiments
- Summarize data numerically and graphically using R
- Understand the difference between point and interval estimation
- Determine and perform correct statistical test (including z/t-tests, ANOVA, Regression, tests for dependence)
- Conclude and interpret the results from those tests

Don't freak out about the computational part of this course! While there will be "number crunching," this class will place more focus on understanding big concepts and learning how to effectively express these concepts in words as much as numbers.

Course Requirements:

Attendance Policy

You should plan to work on this course every day. This means that you absolutely **must have a reliable and consistent internet connection** throughout the duration of the course. This also strongly suggests that you should **not plan to take any vacations** during this course. This is a condensed, fast-paced, course and it would be extremely difficult to catch up after a prolonged absence.

Online Course

This is an online course and therefore there will not be any face-to-face class sessions. All assignments and course interactions will utilize internet technologies.

Email and Internet

You must have an active Doane University e-mail account and access to the Internet. *All instructor correspondence will be sent to your Doane University e-mail account.* Please plan on checking your Doane Gmail account regularly for course related messages.

This course uses Blackboard for the facilitation of communications between faculty and students, submission of assignments, and posting of grades. The Blackboard Course Site can be accessed at <http://bb2.doane.edu>

Campus Network or Blackboard Outage

When access to Blackboard is not available for an extended period of time (greater than one entire evening - 6pm till 11pm) you can reasonably expect that the due date for assignments will be changed to the next day (assignment still due by midnight).

Studying and Preparation Time

The course requires you to spend time preparing and completing assignments. A three-credit course requires 144 hours of student work. Therefore expect to spend approximately 18 hours a week preparing for and actively participating in this 8-week course.

Late or Missed Assignments

ALL assignments must be finished and turned in to complete the course. Unless the instructor is notified BEFORE the assignment is due and provides an opportunity for the student to submit his/her assignment late, points may be taken off for a late assignment. Only in extreme circumstances will a quiz or exam deadline be extended.

Rewrites

There are specific homeworks where students may submit their assignments ahead of their due date for review by the instructor as long as the assignment is provided before the date specified. The instructor will provide feedback on the assignment for consideration by the student.

Submitting Assignments

All assignments, unless otherwise announced by the instructor, MUST be submitted via Blackboard. Each assignment will have a designated place to submit the assignment.

Drop and Add dates

If you feel it is necessary to withdraw from the course, please contact your advisor for full details on the types of withdrawals that are available and their procedures.

Subject to change notice

All material, assignments, and deadlines are subject to change with prior notice. It is your responsibility to stay in touch with your instructor, review the course site regularly, or communicate with other students, to adjust as needed if assignments or due dates change.

Academic Integrity

Doane University expects and requires all its students to act with honesty and integrity, and respect the rights of others in carrying out all academic assignments. Academic dishonesty, the act of knowingly and willingly attempting or assisting others to gain academic success by dishonest means, is manifested in various measures. Gehring, et al, (1986) suggests that four categories of academic dishonesty exist¹:

- a. Cheating
- b. Fabrication
- c. Facilitating academic dishonesty
- d. Plagiarism

For more information on academic integrity, please visit the website:
<http://catalog.doane.edu/content.php?catoid=4&navoid=191>

Graded Learning Opportunities:

Homework

There will be 24 homeworks for this course (3 each week). The homeworks will range in point totals, but typically the third homework of each week will be worth more points than the first two. On the first two assignments of each week, students will be allowed two attempts before the due date, with only the student's score displayed after the first attempt. For some of the third homeworks of each week, students will be allowed to submit their assignment for early assessment. The instructor will provide unofficial feedback, letting the student know how well they are doing before official submission.

Quizzes

There will be quizzes each week that there is not an exam (6 total). The quizzes will focus on the most recent week's subject matter, there will be questions that come from prior weeks' material.

Written Assessment

There will be times in this course that you will be expected to provide short journals, or generating test questions. For more information, look on Blackboard.

Project

There will be a project in this course where students will be provided random data, and they will analyze it like they are an actual statistician. For more information, look on blackboard.

Exams

There will be two exams in this course: a midterm at the end of the fourth week, and a final at the end of the semester. The final will be cumulative.

Grading Procedure:

Homework	20%
Quizzes	20%
Journals	10%
Project	20%
Midterm	15%
Final exam	15%

Grading Scale: (In order to receive a Pass with the Pass/Fail option, a grade of C- or better *must* be earned.)

A final average of 90% will guarantee an A-, 80% a B-, 70% a C-, and 60% a D-.

Accommodations:

If you require accommodations for a documented disability or need to discuss a potential learning challenge, please contact your advisor to begin notifying the institution of any special circumstances affecting your performance. To assist the institution in providing services, documentation of such disabilities must be provided by qualified professionals upon request. While students are encouraged to self-identify at the earliest possible time, they can access services at any time by initiating the process described above (starting with contacting your advisor). Students are encouraged to contact an academic advisor before beginning classes so their needs can be anticipated, reviewed, and accommodated. Please keep in touch about how we can serve your needs.

Student Safety and Nondiscrimination Rights:

Applicants for admission and employment or professional agreements with Doane University are hereby notified that this institution does not discriminate on the basis of race, color, religion, sex, genetic information, national origin, disability, age, marital status, sexual orientation or any other protected class recognized by state or federal law in admission or access to, or treatment, or employment in its programs and activities. Sexual harassment and sexual violence are prohibited forms of sex discrimination.

Any person having inquiries concerning the institution's compliance with the regulations implementing Title VI of the Civil Rights Act 1964, Title IX of the Education Amendments of 1972, or Section 504 of the Rehabilitation Act of 1973 is directed to contact Laura Sears, Director of Human Resources at laura.sears@doane.edu or (402) 826-6773. Laura Sears has been designated by the College to coordinate the institution's efforts to comply with the regulations implementing Title VI, Title IX, and Section 504. Any person may also contact the Assistant Secretary for Civil Rights, U.S. Department of Education, regarding the institution's compliance with the Regulations implementing Title VI, Title IX, or Section 504.

In addition, Title IX makes it clear that violence and harassment based on sex and gender are civil rights offenses, subject to the same kinds of accountability and the same kinds of support that apply to offenses against other protected categories. If you or someone you know has been harassed or assaulted, you can find the appropriate, confidential resources here:

- **Hope Crisis Center:** call 24-hour hotline (877) 388-4673 (HOPE)
- **Title IX Coordinator:** email Laura Sears (laura.sears@doane.edu) or call (402) 826-6773
- **Local Police Department:** 911