Course Syllabus

Course Information: MTH 110, Introduction to Statistics, 3 Credit Hours

Communicating With the Instructor

When questions arise throughout the course, please remember to check the following resources for an answer **before** reaching out to me:

1. Course Syllabus
2. Announcements
3. The Question Center discussion board

Question Center Discussion

The Question Center Discussion is a great place for you to ask questions and get answers from your peers and from me. You are encouraged to post your questions here before reaching out directly to me unless it is a time-sensitive matter. If you have questions of a personal nature such as relating to a personal emergency, questioning a grade on an assignment, or something else that needs to be communicated privately, you are welcome to contact me directly via email or phone.

Response Time

If you need to contact me directly, my preference is that you will email me. Please allow 24 hours for me to respond to emails Monday through Friday and 48 hours on the weekend. If you have a question about the technology being used in the course, please contact the Doane University Service Center for assistance, their contact information is listed later in the syllabus.

Technology Help

If you have a question about the technology being used in the course, please contact the Doane University Service Center for assistance, their contact information is listed later in the syllabus. If there are third party tools utilized in the course, please reach out to them directly.

Course Details

Catalog Description

This course will serve as an introduction to the many uses of statistics. Upon completing this course, students will be able to understand the basics of descriptive statistics, graphical presentations, the normal distribution, simple linear regression, confidence intervals, and hypothesis tests as they apply to real world situations.

Course Prerequisites: None.

Course Textbook and Materials

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

Required Technology

For the successful use of Canvas please refer to Doane University's minimum computer requirements. This also includes:

- Reliable computer and internet connection
- A web browser (Chrome or Mozilla Firefox)
- Adobe Acrobat Reader (free)
- Word processing software—Microsoft Word or Google Docs
- Webcam and mic

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). R can be initially intimidating. While you will be provided with ample instructional videos and documents on using R, do not hesitate to contact the instructor, or your peers via the discussion board, for assistance.

Learning Objectives and Course Outline

The main goal of this course is to introduce students to the subject of statistics. Upon completion of the course, students should expect and be expected to:

1. Identify different types of data and how it can be collected
2. Design simple experiments
3. Summarize data numerically and graphically using R statistical software
4. Differentiate between point and interval estimation
5. Perform the correct statistical test based on the data and question of interest
6. Conclude and interpret the results of a statistical test

Course Summary

Module 1: Data Classification and Collection	
Module **Objective(s)**	**Assessments/Activities** *in order of completion*

1. Identify and classify different data types. 2. Identify methods to collect data. 3. Design a simple experiment	**Module 1 Discussion: Self-Introduction** **Module 1 Assignment 1.1: Types of Data** **Module 1 Journal: Journal (Week 1)** **Module 1 Assignment 1.2: Data Collecting and Experimental Design** **Module 1 Assignment 1.3: Tie it Together** **Module 1 Quiz**

Module 2: Using the R Statistical Software	
Module Objective(s)	**Assessments/Activities** *in order of completion*
1. Summarize data numerically and graphically 2. Differentiate between statistical tests 3. Perform basic commands with datasets in R.	**Module 2 Assignment 2.1: Graphical Representation of Data** **Module 2 Journal: Journal (Week 2)** **Module 2 Assignment 2.2: Numerical Representation of Data** **Module 2 Assignment 2.3: Matching Data to Statistical Tests** **Module 2 Quiz**

Module 3: Point and Interval Estimation	
Module	**Assessments/Activities**

Objective(s)	in order of completion
1. Differentiate between interval estimation and point estimation 2. Explain the assumptions checked when performing statistical tests.	**Module 3 Assignment 3.1: Point and Interval** **Estimation Module 3 Journal: Journal (Week 3)** **Module 3 Assignment 3.2: Basics and Assumptions of Testing** **Module 3 Assignment 3.3: Tie it Together** **Module 3 Quiz**

Module 4: One-Sample Tests and Confidence Intervals

Module Objective(s)	Assessments/Activities in order of completion
1. Evaluate assumptions for confidence intervals and hypothesis tests. 2. Perform the correct statistical test 3. Interpret the results of statistical tests and make a conclusion based on those results.	**Module 4 Assignment 4.1: Determine Which Test** **Module 4 Assignment 4.2: Perform Hypothesis Tests and Interpret/Conclude** **Module 4 Assignment 4.3: Tie it Together** **Midterm Practice (Not Graded)** **Module 4 Midterm: Midterm Exam**

Module 5: Two-Sample Tests and Confidence Intervals

Module Objective(s)	Assessments/Activities *in order of completion*
1. Evaluate assumptions for two sample confidence intervals and hypothesis tests 2. Perform appropriate two sample statistical tests 3. Interpret the results of statistical tests and make a conclusion based on those results.	**Module 5 Assignment 5.1: Assumptions of Two Sample Tests** **Module 5 Assignment 5.2: Perform Two-Sample Tests and Interpret/Conclude** **Module 5 Discussion: Generate a Two-Sample Test Question** **Module 5 Assignment 5.3: Tie it Together** **Module 5 Quiz**

Module 6: One-Way ANOVA Tests

Module Objective(s)	Assessments/Activities *in order of completion*
1. Evaluate assumptions for ANOVA tests 2. Perform an ANOVA test 3. Make a conclusion based on the results of an ANOVA test.	**Module 6 Assignment 6.1: Assumptions of ANOVA Tests** **Module 6 Assignment 6.2: Perform ANOVA Tests and Interpret/Conclude** **Module 6 Assignment 6.3: Tie it Together** **Module 6 Assignment: Project Rough Draft** **Module 6 Quiz**

Module 7: Chi-Square Tests for Independence

Module Objective(s)	Assessments/Activities *in order of completion*
1. Evaluate assumptions for Chi Square tests 2. Perform a Chi-Square test 3. Make a conclusion based on the results of a Chi-Square test.	**Module 7 Assignment 7.1: Assumptions of Chi-Square Tests** **Module 7 Assignment 7.2: Perform Chi-Square Tests and Interpret/Conclude** **Module 7 Discussion: Generate a Chi-Square Test Question** **Module 7 Assignment 7.3: Tie it Together** **Module 7 Quiz**

Module 8: Correlation and Linear Regression Tests

Module Objective(s)	Assessments/Activities *in order of completion*
1. Evaluate assumptions for Correlation and Regression tests 2. Perform correlation and regression tests 3. Make a conclusion based on the results of a correlation or regression test.	**Module 8 Assignment 8.1: Assumptions of Correlation/Regression Tests** **Module 8 Assignment 8.2: Perform Correlation/Regression Tests and** **Interpret/Conclude Module 8 Assignment 8.3: Tie** **it Together** **Module 8 Assignment: Project Final Draft** **Midterm Practice (Not Graded)**

	Final Exam

Course Requirements

This is an online course and there will **not be any face-to-face class sessions**. All communications, submissions of assignments, course interactions, and posting of grades will utilize Canvas LMS (https://doane.instructure.com). You must have a **reliable internet connection** throughout the duration of the course.

Attendance/Participation

Attendance in an online course means logging into Canvas regularly and participating in all of the activities that are posted in the course. In addition, check your Doane University email account regularly, as I may send important information about the course.

Class Preparation

Preparation for class means reading the assigned readings and reviewing all information required for that module. You should plan to work on this course every day. Regular engagement is expected for online courses.

Netiquette Guidelines

At heart, Netiquette (etiquette for the Internet) is simple, good manners and business courtesy. Some of it may seem basic, but some infringements can result in major problems for others or can create an unintended insult to another user. The guidelines are adapted from The Core Rules of Netiquette by Virginia Shea (1994). For more information, please review the Netiquette Guidelines in the Student Resource Center.

Campus Network or Canvas Outage

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

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.

Federal requirements state that students must complete 75% of the coursework to be eligible to receive an incomplete for the course. If students fall more than two weeks behind, they cannot meet this requirement.

Academic Integrity

Fundamental to our mission, our core values, and our reputation, Doane University adheres to high academic standards. Students of Doane University are expected to conduct themselves in a manner reflecting personal and professional integrity. Disciplinary actions may be taken against students whose academic behavior is not congruent with the expectations of the University. Students are responsible for adhering to the standards detailed in this policy. Not being familiar with these standards does not mean that the students will not be accountable for adherence to them. Additional details on the Academic Integrity policy for violating academic integrity are published in the undergraduate and graduate catalogs. Please review [Doane University's Academic Integrity Policy](#).

Course Grading

Submitting Assignments

All assignments, unless otherwise communicated to me, must be submitted via Canvas. Each assignment will have a designated place to submit your work. All materials, assignments, and deadlines are subject to change without prior notice. It is your responsibility to stay in touch with me and review the course site, including Announcements, regularly to learn about changes to assignments or due dates.

Grading Scale

Assignment of letter grades is based on a percentage of points earned. The letter grade will correspond with the following percentages achieved. All course requirements must be completed before a grade is assigned.

Grading Scheme

The following outlines the weighted breakdown for how grades will be

     calculated: Homework – 20%

     Journal/Discussions – 10%

     Quizzes – 20%

     Project – 20%

     Midterm and Final Exams – 30% (15% for each)

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 their assignment late, points may be taken off for a late assignment. Only in extreme circumstances will a quiz or exam deadline be extended. Any assignments from a weekly module will automatically receive a zero if they are not submitted by the Tuesday following the week. For example, Week 1 assignments will not be accepted after Tuesday during Week 2. .

Assignment & Assessment Feedback

Please allow 2-4 days for feedback on assignments. Assignments submitted early may not be graded until after the assignment due date has passed. Be sure to review all of my feedback, as this will help you reflect on what you have learned while receiving suggestions for improvement.

Grade Appeals

Students who believe that their grade was miscalculated due to a mathematical error should contact the instructor within **ten (10) days of the grade posting**. A student is encouraged to talk with their advisor to offer an assessment of the concern and to clarify the steps of the appeal process. More information is published in the [Undergraduate and Graduate Catalogs](#).

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 9 hours a week preparing for and actively participating in this 16-week course.

Tutor Me
Students will have access to a free tutor me service within their Canvas account. You can connect with a live free tutor or submit a paper to get feedback before submitting.
Examity
Examity is Doane University's proctoring system. It may be used in your course to proctor quizzes and exams. You will be required to complete a quiz through Examity at the beginning of the course to verify your identity. Once you complete this quiz, you may begin your course.

Submitting Assignments
All assignments, unless otherwise announced by the instructor, MUST be submitted via Canvas. Each assignment will have a designated place to submit the assignment. Support and Services

Technical Support

If you are in need of technical assistance, please access the [Self-Service Portal](#). You may reach the help desk at 402-826-8411 or by email at helpdesk@doane.edu.

Accessibility Statement

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at Doane University facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. Doane University staff coordinate student transitions from high schools and community colleges, conduct in-service training for faculty and staff, enable the resolution of accessibility issues, conduct community outreach, and facilitate collaboration among Doane University staff on disability policies, procedures, and accommodations.

Accommodations & Disability Services

[Doane University's Disability Services Office](#) will provide guidance on accommodations and universal access. To request accommodations please complete the [Self-Identification Form](#) and visit the website for additional information as soon as possible.

Academic Support

Doane University offers all of its students access to [Academic Support](#) services.

Title IX Requirements: Mandatory Reporting

At Doane, all university employees, including faculty, are considered Mandatory Reporters. As a Mandatory Reporter, I am required to report incidents of sexual misconduct and relationship violence to the Title IX Coordinator and, thus, cannot guarantee confidentiality. This means that if you tell me about an incident of sexual harassment, sexual assault, domestic violence, dating violence, stalking and/or other forms of prohibited discrimination, I have to share the information with the University's Title IX Coordinator. My report does not mean that you are officially reporting the incident. This process is in place to ensure you have access to and are able to receive the support and resources you need. For additional information, including confidential resources, please visit the [Campus Advocacy, Prevention, and Education (CAPE) Project](#).

Anti-Harassment Policy

Doane University, referred to as the "University", is committed to providing a safe and non discriminatory learning, living, and working environment for all members of the University community. This policy addresses the University's responsibilities under Title IX, the Violence Against Women Reauthorization Act of 2013, and the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act ("Clery Act"). More information is published in the [Student Handbooks](#).

Instructional Technology Accessibility and Privacy Policies

[Technology accessibility and privacy policies](#) are available on the Student Resource Center within the Canvas LMS.

Syllabus Addendum & Disclaimer

I (the instructor) view the course syllabus as an educational contract between myself and each student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. I reserve the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or in the course site Announcements. Please remember to check your Doane University email and the course site Announcements often.

Syllabus Changes

The instructor and Doane University reserve the right to make changes as necessary to this course syllabus. All students will be notified of any changes.

Syllabus Addendum

Each student is responsible for being aware of the policies, resources, and expectations as specified in the Doane Syllabus Addendum.