Spring 2020

Nichols College
Learn. Lead. Succeed.

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Office Hours:
- Monday, Tuesday, Wednesday, and Friday from 9:30-10:15AM
- Also available by appointment

Statistics 1

Dates: Spring 2020, 1/13/2020-4/29/2020
Times: Monday, Wednesday 8AM-9:15AM
Location: Fels 323

TEXTBOOK:

Understanding Basic Statistics by Brase and Brase, 6th edition, *Cengage Learning*
ISBN: 978-1111827021
With Webassign

PLEASE NOTE:
You are NOT required to purchase a hard copy of the textbook since an electronic version of the textbook is included with your Webassign subscription.

REQUIRED MATERIALS:

- <u>Statistics notebook:</u> A traditional paper notebook or tablet is needed for class notes, etc.
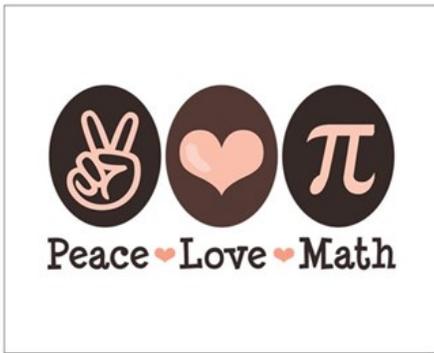- Scientific or Graphing Calculator

Please Note:
- No sharing of calculators, algebra notebooks or textbooks will be allowed.

COURSE DESCRIPTION:
A first course in probability and statistics covering descriptive statistics, correlation, linear regression, probability, probability distributions, confidence intervals and hypothesis testing.
- Prerequisite: Math 117 or Math 122 or Math 190 or its equivalent.
- Credits: 3

Peace ♥ Love ♥ Math

MATH is the Language of the Universe

COURSEWORK

Tests:
　　All tests will be announced in advance. A student missing a test will be given a zero for that test, unless a make-up for an extraordinarily extenuating, document circumstance is arranged with the instructor prior to the test date.

　　For tests, all work handed in must be neat and legible. To obtain full credit, each problem must be written out, all work must be shown and the answer must be boxed. **Writing down the answer without showing related work will receive no credit.** Illegible work will not be accepted under any circumstances.

Homework (Webassign):
　　All **homework** will be completed online through Webassign. Late homework will not be accepted, except under truly justifiable circumstances as determined and approved by the instructor.

Excel Project:
　　Students will complete a project applying statistical concepts to real world, data driven activities. Project details will be provided in class and on Canvas.

Final Exam:
　　The final exam is a required element of the course.   It is a comprehensive, cumulative assessment that will be based on assigned homework and tests. Students are expected to be on time and prepared for the final exam.

The final exam will be given during the last two class meetings.

Course Grading:
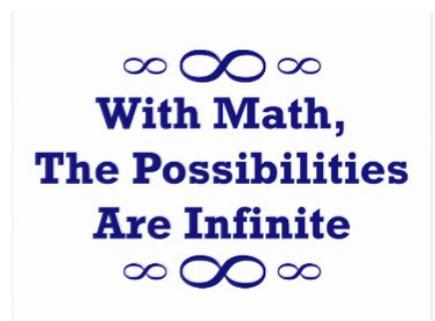A student's final grade will be determined as follows:

Homework (Web Assign)
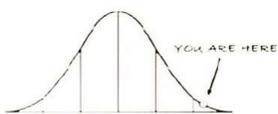　　　25%

Excel Project
　　　20%

Tests (4)
　　　40%

Final Exam
　　　15%

PLEASE NOTE: Final grades will be determined in accordance with the grade point system as detailed in the Nichols Catalog.

∞ ∞ ∞
With Math, The Possibilities Are Infinite
∞ ∞ ∞

Grading Scale

A	93 - 100 %
A-	90 - 92.99 %
B+	87 - 89.99 %
B	83 - 86.99 %
B-	80 - 82.99 %
C+	77 - 79.99 %
C	73 - 76.99 %
C-	70 - 72.99 %
D+	67 - 69.99 %
D	63 - 66.99 %
D-	60 – 62.99%
F	59.99% and below

KEEP CALM AND BE SIGNIFICANT

YOU ARE HERE

LATE WORK AND MAKE UP WORK

Unless you have an excused absence, MAKE UP WORK is not allowed.

LATE ASSIGNMENTS will lose 10% of the total score possible for each day late. In other words, submitting assignments late will have a detrimental impact on your grade.

If you are using one of your allowed absences, your work MUST still be submitted in Canvas/WebAssign before it is due. If there is a life-altering event in your life, please see me so we may arrange for a more suitable timetable for you. If you do not communicate with me, it will be assumed that the work is late and it.

If you are unable to take a scheduled exam you must contact me (via email, phone, or in person) before the day of the exam to reschedule or make alternative arrangements. Failure to contact me in advance of your inability to take an exam will result in a score of zero for that exam. Of course, if you have a documented medical emergency, accommodations can be made.

ATTENDANCE POLICY

To be successful in this course, the student must maintain good attendance. Attendance will be taken at the beginning of class. If you are late, you must let me know at the end of class so I don't mark you absent. *Arriving late (or leaving early) twice will count as one absence.* Extra points may be added to/deducted from your final grade for attendance as follows:

0 absences	3 points added to final grade
1 absence	2 points added to the final grade
2 absences	1 point added to the final grade
3 absences	0 points added to your final grade
4 absences	1 point deducted from the final grade
5 absences	2 points deducted from final grade
6 absences	3 points deducted from final grade

ETC.
Please note the link to Nichols' College Absence Policy below.
https://www.nichols.edu/files/Nichol-College-Undergraduate-Catalog-2019-2020.pdf

Please make note of policy regarding absence documentation that states that "Nichols College Health Service does not provide documentation for excused absences unless the student is required to leave campus or is quarantined to his/her room."
This policy is consistent with our goal of supporting dialogue between faculty and students. If you know you will be absent, please be courteous and let me know as soon as possible! If you are not in class and I do not hear from you, I do worry! Also, communicating with a "boss" is good practice for real life. And, it is the polite thing to do.

Exceptions to this policy may be granted for extreme documented circumstances.

Week	Topics	
1/13	Introduction to Course, Canvas, WebAssign Measures of Central Tendency (Sect 3.1), Measures of Variation (Sect 3.2)	Friday, 1/17: Add/drop ends
1/20	MLK JR. DAY, January 20 – No Classes Measures of Variation, Percentiles, Box and Whisker Plots (Sect 3.2-3.3)	
1/27	Scatter Plots and Linear Correlation (Sect 4.1) Linear Regression and Coefficient of Determination (Sect 4.1-4.2)	
2/3	Review for Test TEST #1, Wednesday, 2/5	
2/10	Intro to Probability (Sect 5.1), Compound Events (Sect 5.2) Intro to Probability Distributions (Sect 6.1)	
2/17	PRESIDENT'S DAY, February 17 – No Classes Binomial Probabilities (Sect 6.2), Additional Properties of the Binomial Distribution (Sect. 6.3)	
2/24	Graphs of Normal Probability Distributions (Section 7.1) Areas under the Standard Normal Distribution, Areas under Any Normal Curve (Sect 7.2 & 7.3)	
3/2	Review for Test #2 TEST #2, Wednesday	
3/9	Sampling Distributions (Sect 7.4), Central Limit Theorem (Sect 7.5) Normal Approximations to Binomial Distributions (Sect 7.6)	
3/16	Spring Break – No Classes, Enjoy your break!	
3/23	Estimating the Mean (Sect 8.1) Estimating the Mean (8.2), Estimating p (Sect 8.3)	
3/30	Review for Test #3 TEST #3, Wednesday	Last day to Withdraw: Tuesday, 3/31
4/6	Work on Stats/Excel Projects Introduction to Statistical Tests: Testing the Mean (Sect 9.1 and 9.2)	
4/13	Hypothesis Testing (Sect 9.3) Wednesday, Review for Test #4/EXAM	
4/20	Monday, TEST #4 and Exam (Part 1) Wednesday, EXAM (Part 2)	
4/27	Presentation of Stats/Excel Projects	Classes End: Wednesday, 4/29

The course outline will be covered on a best effort basis, subject as always to time limitations or other unforeseen events that occur as the course progresses. If changes occur, they will be posted on Canvas.
I hope you will enjoy the course! Good Luck!!!

Course Objectives / Outcomes / Assessments

After each outcome, there is a code relating to Nichols College Learning Outcomes and Math Program Outcomes, which are listed below.

Course Objectives	Course Outcomes	Assessment of Outcome
To provide the student with a basic knowledge of the elements of probability and statistics	NC – 2; Math – 4, 5	Tests, weekly homework, Excel projects, and a final exam will assess.
To provide techniques suitable for handling statistical data	NC – 2; Math – 3, 5	Tests, weekly homework, Excel projects, and a final exam will assess.
To demonstrate the application of elementary statistics and probability to real world problems	NC – 2; Math – 5	Webassign assignments, and Excel projects will access.
To develop the use of the computer using statistical software	NC – 2; Math – 4, 5	Tests, weekly homework, Excel projects, in class activities, and a final exam will assess.
To enhance critical thinking skills	NC – 2; Math – 4, 5	Tests, weekly homework, Excel projects, in class activities, and a final exam will assess.

Nichols College Educational Goals & Outcomes

I. **Communication**
Effectively express and accurately comprehend concepts and facts using a range of appropriate and current communication methods.

II. **Critical Thinking & Quantitative Analysis**
Utilize qualitative and quantitative problem-solving skills to analyze and interpret information.

III. **Ethics & Personal Accountability**
Recognize and assess questions of right and wrong and demonstrate a willingness to act responsibly in personal and professional life.

IV. **Civic & Social Engagement**
Articulate an understanding and appreciation of cultural and human differences, acknowledging the interconnectedness of a global society and one's social and civic responsibility to the community, the nation and the world.

V. **Leadership & Teamwork**
Work effectively and collaboratively in a group, assume leadership when appropriate, and support leadership in others.

Mathematics Program Outcomes

1. Students will demonstrate a working knowledge of selected topics from pure mathematics, applied mathematics, financial mathematics, statistics and probability.
2. Students will develop a logical foundation in order to construct mathematical proofs.
3. Students will demonstrate understanding of the mathematical basis of common algorithms, and the ability to calculate accurately and efficiently.
4. Students will communicate mathematical ideas clearly. They will use correct mathematical terminology and proper mathematical notation.
5. Students will demonstrate their ability to apply mathematics in other fields at an appropriate level and demonstrate their ability to apply knowledge acquired from their major to real world models

Credit Hour Policy

A 3-credit course requires 37.5 contact hours, which does <u>not</u> include time spent on homework assignments or studying. A 4-credit course requires 50 contact hours. A traditional full-semester course fulfills this requirement by meeting in class for 2.5 – 3.5 hours per week. Students should expect to dedicate an additional 6 hours per week to homework and studying for a 15-week course.

Policy can be found on page 46 at https://www.nichols.edu/files/Nichol-College-Undergraduate-Catalog-2019-2020.pdf

THIS SYLLABUS IS SUBJECT TO CHANGE

COLLEGE POLICIES

ABSENCES

Student absences do not reduce or eliminate course requirements or outcomes.

Documentation absences may only be excused by a student's individual faculty member who reserves the right – as appropriate – to require timely, written verification of the basis for the student's absence from class in a form acceptable to the faculty member.

CLASSROOM CONDUCT AND ACADEMIC EXPECTATIONS

Because all students and faculty at Nichols College are entitled to a positive and constructive teaching and learning environment, Nichols College classroom participants are prohibited from engaging in behavior or activity that causes the disruption of teaching, learning, research or other academic activities necessary for the fulfillment of the college mission. It is expected that students and instructors will:

- Respect the views and opinions of the instructor and fellow students, and engage in a constructive, respectful, and professional manner.
- Participate in a learning environment free from interference, discrimination, intimidation, sexual harassment, stalking, or disparagement in the classroom.
- Respect the professional authority of the faculty, including maintaining an environment free from bullying, harassment, or coercion related to grading and institutional policies.

Violations will be reported to the office of academic affairs.

NICHOLS COLLEGE ACADEMIC HONESTY POLICY

Enrollment in an academic course at Nichols College obligates the student to follow the College's academic Honesty Policy, the violation of which can lead to serious disciplinary action. the policy may be stated simply as follows: the College expects all academic work submitted by a student (papers, exams, projects, computer programs, etc.) to be the student's own. Plagiarism (as defined below), cheating during examinations, and assisting others in the acts of plagiarism or cheating, are expressly prohibited by the policy. In sum, a student's academic performance must be an honest representation of the student's ability

LEARNING ACCOMMODATIONS AND SUPPPORT SERVICES

Learning Services supports any student with a documented learning difference and strives to help students realize their full learning potential. Success is met through specialized coaching and classroom accommodations depending upon the individual student's needs. Students that wish to take advantage of class-room accommodations should submit their official documentation current within three years of acceptance to Nichols College. It is also strongly encouraged that students schedule a visit to meet with the assistant Dean for learning Services to discuss their academic needs.