Central Connecticut State University  
Department of Mathematical Sciences

STAT 453  
Applied Statistical Inference  
Spring 2020

Tuesday and Thursday 5:55pm – 7:10pm  
MS 308

PREREQUISITE

Graduate standing with at least one course in statistics or STAT 315 or permission of instructor.

CATALOG DESCRIPTION

Statistical techniques used to make inferences in experiments in social, physical, and biological sciences, and in education and psychology. Topics included are populations and samples, tests of significance concerning means, variances and proportions, and analysis of variance. No credit given to students with credit for STAT 201 or STAT 216.

COURSE DESCRIPTION

This is a second course in statistics for students who are interested in how statistical analyses can be used to answer research questions in the social science and physical science. Our focus will be on some of the most widely used statistical methods that are used, how to mathematically represent the phenomenon we are interested in studying, and how data analysis can be used to answer some of our questions.

GOALS

One of the primary goals in this course is to get you familiar with how to interpret and conduct quantitative research. We will be looking at some of the most widely used statistical methods that are often used in research, such as linear regression, multiple regression, analysis of variance, and perhaps even nonparametric inference (if time permits). Other topics may be added based on student interest and background. This course can help prepare you to conduct your own quantitative research, and to become better prepared to understand research done by others.

INSTRUCTOR

Dr. S. A. Lesik
MW 314
Phone: (860)832-2837
E-mail: lesiks@ccsu.edu
My office hours for the Spring 2020 semester are:

**Odd Weeks**

- Tuesday 3:30pm – 4:30pm
- **Wednesday 12:00pm – 2:00pm**
- Thursday 12:00pm – 1:30pm

**Even Weeks**

- **Monday 12:00pm – 2:00pm**
- Tuesday 3:30pm – 4:30pm
- Thursday 12:00pm – 1:30pm

And by appointment

Odd and even weeks are determined by the week into the semester as can be seen on the course calendar on Blackboard.

**AVAILABLE TEXT**


**GRADES**

Grades will be based strictly on the following criteria:

- Four In-class/Take Home Examinations (20% each) 80%
- Take-Home Quizzes (Online) 20%
- 100%

In calculating your final grade, I will take your best 80% out of 100%.

In order to be fair to all students, extra-credit work will not be accepted at any time for any reason. **As a general course policy there are no make-ups allowed for missed or late work (this also includes what some refer to as “excused” absences).** There are no exceptions to this policy so please do not ask. However, if you know you are going to be out on the day when an in-class exam is scheduled, you can speak with me about trying to arrange a time to take the exam in advance. However, if such a request is made at the last minute, there is no guarantee that we will be able to find a time that fits both of our schedule, so taking in-class exams in advance with less than a one-week notice may not be able to be accommodated.

All in-class exams are closed books, closed notes, and closed friends. A formula sheet can be used for each exam. You may also use a graphing calculator. If you miss an in-class exam you will receive the grade of 0 for that exam, and your grade will be determined by the remaining 80% of the material.

All in-class exams must be taken within the normally scheduled class time. Extra time on in-class exams will not be available. If students have a documented disability and are allowed extended time on exams, the exam must be taken through the office of Student Disabilities Services. Students are not allowed to share calculators or notes during an exam.
Online quizzes will be given throughout the course and will be posted on the course website. Online quizzes cannot be taken late under any circumstance. In calculating your final grade, I will drop the lowest online quiz grade.

Since there is a dropped online quiz, and I take your best 80% to calculate your final grade, excuses and doctor’s notes will not be accepted for work that is missed or late. If you have so much going on in your life that you are excessively absent and are unable to keep up with the workload within the allotted course time, you will need to seriously consider whether you should drop the course and take it at a time when you have less distracting you from your studies.

If you are a student with a documented disability, and would like to request academic accommodations, you are encouraged to contact Student Disability Services (SDS) at 860-832-1952, or email disabilityservices@ccsu.edu. Please visit the SDS website at http://www.ccsu.edu/sds/ to download an Intake form and documentation requirements. Temporary impairments may also qualify for accommodations. Central Connecticut State University provides reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act for students with documented disabilities on an individualized basis.

Cell phones, PDA’s, laptops, or other electronic devices (including classroom computers) are not to be turned on or used during exams or during class unless otherwise permitted.

COURSE ETIQUETTE

All class participants will act appropriately at all times. I expect that students will work together to create a productive learning environment that includes giving others a chance to speak and respecting the rights and opinions of others. Excessive chatting and interruptions during class is a distraction to others who are trying to learn. Students who are disruptive or who do not act appropriately will be reported to the Office of Student Conduct.

ELECTRONIC DEVICES POLICY

Cell phones, laptops, or any personal electronic devices are not to be used during class, exams, or quizzes unless special accommodations are documented. You cannot listen to music, text, search the internet, etc., during class or during the exams. Any student who uses a cell phone or any other personal electronic device during an exam will automatically receive the grade of 0 for the exam and a report of academic misconduct will be filed.

COMPUTING AND DATA ANALYSIS

Statistical computing and data analysis are an integral part of statistical inference. We will be using both graphing calculators and the statistical software program Minitab throughout the course. The Minitab package is available on most computers on campus. You can also access Minitab virtually thorough the CCSU apps (http://apps.ccsu.edu). You can expect there to be a large amount of take-home/extra credit work that will require you to use this software.
TENTATIVE COURSE TOPICS

Data Analysis  
Probability  
Random Variables  
Sampling Distributions  
Confidence Intervals  
Hypothesis Testing  
Comparing Two Populations  
Inference for Distributions of Categorical or Proportional Data  
Analysis of Variance  
Regression Analysis  
Nonparametric Statistics (if time permits)

ABOUT THIS COURSE

This is a hybrid course that meets on campus one day a week and there is an online component. The way this course will run is that you will be responsible for watching online videos per week. We will then review the material that was covered in the videos during class, and you will have an online assessment that is due before the next review session. It will be important for you to use the course calendar that is available on Blackboard to see what is due when.

WHO SHOULD TAKE THIS COURSE?

✓ You are disciplined and willing to spend time learning the material for the course.  
✓ You are comfortable using computers and are able to navigate through technical issues.  
✓ You are committed to coming to class for the review sessions and are able to complete all the online assessments in a timely manner.

CANCELLATION/DELAY PROCEDURE

At the discretion of the President, classes may be cancelled or delayed because of inclement weather conditions or special circumstances. The most accurate cancellation and delay information for Central Connecticut State University will be made available on the Storm Phone: (860) 832-3333 and on the Web: //www.ccsu.edu--usually by 6:00 am, or, in the event of a late-breaking storm, as soon as a decision is reached. When evening classes are cancelled, this usually includes all classes beginning at 4:30 pm and thereafter. If a different cancellation time is required by concerns for changing weather or travel conditions, the University will specify that time. Notifications will be updated as conditions warrant. The University may also deploy its Emergency Notification System in announcing cancellations, especially in cases of rapidly developing severe weather. If the University is forced to close or delay during the final examination period because of storm conditions, this information will also be made available on the Storm Phone and the Web. These services will also carry information from the Registrar’s Office once the affected exams are rescheduled.

The University will also notify the broadcast media of cancellations or delays affecting regular classes or exams. WFSB-TV 3, WTNH-TV 8 and WVIT-TV 30 are the principal television outlets. However, we strongly recommend using the University’s web and Storm Phone (860-832-3333) services for the most accurate information about CCSU’s closings or delays.
STATEMENT ON DISCRIMINATION AND HARRASSMENT

Statement on Discrimination and Harassment

Central Connecticut State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon age; ancestry, color; gender identity and expression; intellectual disability; learning disability; mental disorder; physical disability; marital status, national origin; race; religious creed; sex, (including pregnancy, transgender status, sexual harassment and sexual assault); sexual orientation; or any other status protected by federal or state laws. Any student who has concerns should contact the Office of Diversity and Equity (ODE) at 860-832-0178, Student Affairs at 860-832-1601, or his/her faculty member. The ODE is located on the main floor of Davidson Hall, Room 102.

Sexual Misconduct, Intimate Partner Violence and Stalking

Option 1. Central Connecticut State University is committed to providing a learning and working environment that emphasizes the dignity and worth of every member of its community. Sexual harassment (including sexual assault) in any form will not be tolerated. "Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. For additional information, please consult the CCSU policies at http://www.ccsu.edu/diversity/policies/index.html. All faculty members and staff have a duty to report incidents of sexual harassment including sexual violence to Nancy "Rusty" Barcelo, Interim VP for Diversity, Inclusion, and Equity, Office of Diversity and Equity, Davidson Hall, 102.

Option 2. Central Connecticut State University (CCSU) will not tolerate sexual misconduct against students, staff, faculty, or visitors in any form, including but not limited to: sexual assault, sexual exploitation, sexual harassment or stalking, as defined in CCSU policies. For additional information, please consult the CCSU policies at http://www.ccsu.edu/diversity/policies/index.html. All faculty members and staff have a duty to report incidents of sexual harassment including sexual violence to Nancy "Rusty" Barcelo, Interim VP for Diversity, Inclusion, and Equity, ODE, Davidson Hall, 102. To file a report, contact: Diversity and Equity (860-832-0178); Student Affairs (860-832-1601); Student Conduct (860-832-1667); or the University Police (860-832-2375).

For support and advocacy contact: Office of Victim Advocacy & Violence Prevention (Diloretto Hall 305) at 860-832-3795 to speak with Joanna Flanagan {jflanagan@ccsu.edu}; Student Wellness Services at 860-832-1925 (confidential), the Women’s Center at 860-832-1655, the local YWCA’s Sexual Assault Crisis Services Hotline at 860-223-1787 (confidential) and Prudence Crandall Center for Domestic Violence (confidential) at 888-774-2900 (24-hour hotline).

ACADEMIC MISCONDUCT

At Central Connecticut State University, we value personal integrity as fundamental to our interactions with each other. We believe that one of the purposes of a University education is for students learn to think critically, to develop evaluative skills, and to express their own opinions and voices. We place special weight on academic honesty in all of our intellectual pursuits because it is a value that is fundamental to academic life and scholarly practice. All members of the University
community are obligated to uphold high standards of academic honesty in their scholarship and learning. Therefore, we expect students to take personal responsibility for their intellectual work and to respect and acknowledge the ideas of others. Academic honesty means doing one's own work and giving proper credit to the work and ideas of others. It is the responsibility of each student to become familiar with what constitutes academic dishonesty and plagiarism and to avoid all forms of cheating and plagiarism.

According to the Student Code of Conduct and Statement of Judicial Procedures, academic misconduct “includes, but is not limited to, providing or receiving assistance from another, in a manner not authorized by the instructor, in the creation of work to be submitted for academic evaluation (including papers, projects and examinations).”

“Plagiarism is defined as presenting, as one’s own, the ideas or words of another person, for academic evaluation, without proper acknowledgment. Plagiarism includes, but is not limited to: (i) copying sentences, phrases, paragraphs, tables, figures, or data directly or in slightly modified form from a book, article, or other academic source without using quotation marks or giving proper acknowledgment to the original author or source; (ii) copying information from Internet Web sites and submitting it as one’s own work; (iii) buying papers for the purpose of turning them in as one’s own work; and (iv) selling or lending papers to another person for submission by that other person, for academic evaluation, as his or her own work.”

Examples of Academic Misconduct

Exams:

- Copying from another person's paper or receiving unauthorized aid from another person during an examination;
- Use of unauthorized materials or devices during an examination or any other form of academic evaluation and grading; e.g., use of signals, notes, books, or calculators during an examination when the instructor has not approved their use;
- Knowingly allowing another person to copy from one's paper during an examination;

Improper Behavior:

- Use of another person as a substitute in any form of academic evaluation or acting as a substitute for another person in any form of academic evaluation. e.g., a student cannot have another person take an examination for him/her;
- Acquisition or distribution of improperly acquired examinations; e.g., stealing examinations before the test period or taking a copy of an examination from a testing room without the permission of the instructor; (Examinations which have been distributed by an instructor are legitimate study tools);
- Submission of another's material as one’s own for academic evaluation;
- Preparation of work for another student to submit for academic evaluation;
- Unauthorized collaboration in the preparation of materials to be submitted for academic evaluation; e.g., working with another student on an assignment when the instructor has not authorized working together;
- Submission of the same work, or substantially similar work, in more than one course without prior consent of the evaluating instructor(s);
• Disruption in classroom, lab, or research and study areas; any conduct or actions that grossly or persistently interferes with the academic process. (See the CSU, Rights and Responsibilities, "Proscribed Conduct," No. 7, CCSU Student Handbook.)

Falsification or Misuse of Academic Information:

• Falsification or misrepresentation of one’s own academic record or that of anyone else; e.g., altering a transcript for admission, hacking into the University's computer system and changing a grade, having another student take an examination in one’s place, signing someone else’s name to an attendance sheet.
• Unauthorized use of information in University computer records or the computer files of other students (see Computer Use Policy);
• Using unauthorized materials or fabricated data in an academic exercise; e.g., falsifying data in a research paper or laboratory activity; conducting research on human or animal subjects without review by the appropriate panel or supervisor.

Plagiarism:

• Copying sentences, phrases, paragraphs, tables, figures or data directly or in slightly modified form from a book, article, or other academic source without using quotation marks or giving proper acknowledgment to the original author or source.
• Copying information from internet websites and submitting it as one's own work;
• Buying papers for the purpose of turning them in as one's own work;
• Selling or lending of papers for the purpose of violating academic honesty policies (this may also be an academic crime, see Connecticut General Statutes, §53-392a.)

How to Avoid Plagiarism

Plagiarism is presenting another person’s work without acknowledgements, whether in the same or in slightly modified form. In academic practice this is regarded as theft, intended to gain undeserved credit. Like other forms of academic dishonesty, plagiarism is cheating. To academicians, a well-documented paper is more impressive than one which arouses the suspicion of a reader familiar with the student's work and alert to echoes from other writers. The proper use of outside sources does not necessarily mean that a paper is lacking in originality, nor does the presence of quotation marks in the text. In fact, the purpose of research and documentation is to share useful information with the reader. The penalties for plagiarism greatly exceed the unlikely reward of gaining credit by getting away with it. Students must be careful to avoid plagiarism and are responsible for learning how to present the ideas of others in their own work. For current documentation practice, consult the instructor and a style manual. When material is borrowed from another person, the source must be indicated. There are three ways in which another writer's material may appear:

1. By putting quotation marks around short passages borrowed verbatim (word for word); or by setting off from the text, without quotation marks, for longer quotations.
2. By precis; condensing part of a writer's argument.
3. By paraphrase: interpretation of a writer's ideas.

All three must be acknowledged either in footnotes or informally in the text.
This material is adopted from the original Policy on Academic Misconduct that was approved by the Faculty Senate on 11/05/01, which is superseded by the Disciplinary Procedures for Academic Misconduct approved by the Faculty Senate on 5/10/10 and amended on 2/14/11. This material is provided as a resource for understanding and preventing academic misconduct.