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| **CATALOG DESCRIPTION:** This course is designed to give students a basic overview of what statistics are and how they are used. Students will study the vocabulary of statistics, and then focus on calculating and interpreting statistics. This course will prepare students to use statistics that they will encounter in their lives. Study will include sampling; experiments and observational studies; summarizing and displaying data; bell-shaped curves; plots, graphs, and pictures; relationships between variables; reporting trends; probability; confidence intervals; hypothesis testing; and case studies. | | | | | |
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**PREREQUISITE(S):** Eng 042, Mat 054 or appropriate placement test score (>75 on Accuplacer Elementary Algebra test)

**COREQUISITE(S):** None

**CREDITS:** 3 **HOURS**: 3

**REQUIRED TEXT(S):** *Seeing Through Statistics.*  4th Edition. Utts. 2015.

**ISBN:** 13:9781285050881

**SUPPLEMENTAL MATERIALS:** A calculator is required for this course.

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| **INSTRUCTOR INFORMATION:**  **OFFICE HOURS:** |

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| **CORE COMPETENCIES:** The following core competencies are embedded in this curriculum: Apply appropriate mathematical and statistical concepts and operations to interpret data to solve problems; Use computer systems or other appropriate forms of technology to achieve educational and personal goals. | |
| **LEARNING ASSESSMENT** | |
| ***Student Learning Outcomes:*** | ***Suggested Means of Assessment:*** |
| Communicate accurate mathematical terminology and notation to explain strategies to solve problems and interpret solutions. | Homework, Projects, Tests, Final Exam |
| Use technology correctly to solve mathematical problems. | Homework, Projects, Tests, Final Exam |
| Utilize various reasoning, problem-solving, and critical thinking techniques to interpret research. | Homework, Projects, Tests, Final Exam |
| Compute measures of descriptive statistics. | Homework, Projects, Tests, Final Exam |
| Apply basic statistical concepts. | Homework, Projects, Tests, Final Exam |
| **GRADING SYSTEM:** | C+      =          77 <   80 |
| A         =          90 < 100 | C         =          70 <   77 |
| B+       =          87 <   90 | D = 60< 67 |
| B          =          80 <   87 | F         =          Below 60 |

**DISABILITY SERVICES STATEMENT:** Warren County Community College is committed to providing all students equal access to learning opportunities. Student Services is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations. Students who have, or think they may have, a disability (e.g. mental health, learning, vision, hearing, physical or systemic), are invited to contact Student Services to arrange a confidential discussion at (908) 835-2300 or by email at StudentServices@Warren.edu as soon as possible. Students registered for Disability Services with Student Services, who have requested accommodations for the current semester will be provided with an electronic letter detailing individual accommodations and are encouraged to contact the instructor early in the semester to discuss accommodations outlined in their letter.

**INSTRUCTIONAL SUPPORT CENTER:** The Instructional Support Center (ISC), located in Room 105 across from the library, provides academic support at no cost to WCCC students and is available for courses in which they are currently enrolled. The ISC is staffed with trained professional and peer tutors who are ready to help you understand and succeed. For scheduling or further information, visit the ISC in person, online at http://www.warren.edu/tutoring/ or by telephone at (908)835-2354.

**STATEMENT AND POLICY ON CHEATING, PLAGIARISM AND ACADEMIC DISHONESTY:** Students are required to perform all the work specified by the instructor, and are responsible for the content and integrity of all academic work submitted. A violation of academic integrity will occur if a student: (1) knowingly represents work of others as one’s own, (2) uses or obtains unauthorized assistance in any academic work, (3) gives fraudulent assistance to another student, or (4) furnishes false information or other misuse of college documents.

In cases of suspected violation of academic integrity, the incident is to be reported to the Office of Academics. A student found guilty of violating the rule of academic integrity by the Vice President of Academics will be considered to have failed in personal obligation to the College; such failure will be subject to disciplinary action by the College. Unless otherwise notified, the instructor will allow students who are pending disciplinary action to attend class.

**REQUIRED FORMAT FOR RESEARCH PAPERS:** Research papers written for any Warren County Community College class must conform to the required documentation style. Papers written for humanities (and some social science) classes will follow the most recent edition of the Modern Language Association (MLA) in-text citation and bibliographic methods. Social science and science papers will require the use of the most recent edition of the American Psychological Association (APA) in-text citation and bibliographic methods. History papers will require the use of the most recent edition of the Chicago Manual of Style (CMS) footnotes, citations and bibliographic methods.

Please consult with your instructor regarding the correct documentation style to use in his/her class.

**ATTENDANCE POLICY:** Students are expected to attend all class sessions of courses in which they are enrolled and are responsible for all material presented in class and all homework assignments.

Grades are based on the quality of work completed in meeting the requirements for a particular course, as stated in the course syllabus and catalog description.

Excessive absence may be considered sufficient cause for dismissal from class by an instructor or other appropriate college staff member. Any decision to exclude a student from class or the College due to excessive absence shall be subject to review by the President in accordance with established procedures. Students who have not attended class are not entitled to a refund of tuition.

**WCCC HAYTAIAN & MAIER LIBRARY:** (908) 835-2336 <http://warren.libguides.com>

Check the Academic Calendar for specific holiday dates.  Exceptions may apply during breaks and summer sessions.  Any changes to the Library’s hours are posted on the Library’s web page and near the Library doors.

* **Passwords and Log-Ins-**The Library is responsible for resetting passwords for your Network account (email, computers, Wi-Fi, library resources, and printing).  This cannot be reset over the phone.  Please stop by the Library for help.
* **College IDs-**College IDs are required for all students.  The Library is responsible for producing all ID cards.  To get an ID card you must bring to the Library a current copy of your class schedule and another form of ID.  Your student ID is also your library card and is needed to check materials out of the Library.  Your first ID card is free and replacement cards are issued at a cost to the student.
* **Inter-Library Loan (ILL)-**The Library participates in a nation-wide inter-library loan program which is available free to all students and faculty.  You can either submit ILL requests via the Internet (form available on the Library’s web page) or in person at the circulation desk.

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| **TOPICAL OUTLINE:**   |  |  | | --- | --- | | 1. THE BENEFITS AND RISKS OF USING STATISTICS    1. Why Bother Reading this Book?    2. What is Statistics All About?    3. Detecting Patterns and Relationships    4. Don’t Be Deceived by Improper Use of Statistics    5. Summary and Conclusions | 1. MEASUREMENTS, MISTAKES, AND MISUNDERSTANDINGS    1. Simple Measures Don’t Exist    2. It’s All in the Wording    3. Open or Closed Questions    4. Defining What is Being Measured    5. Defining a Common Language | | 1. HOW TO GET A GOOD SAMPLE   1. Common Research Strategies  2. Defining a Common Language  3. The Beauty of Sampling  4. Simple Random Sampling  5. Other Sampling Methods  6. Difficulties and Disasters in Sampling | 1. EXPERIMENTS AND OBSERVATIONAL STUDIES    1. Defining a Common Language    2. Designing a Good Experiment    3. Difficulties and Disasters in Experiments    4. Designing a Good Observational Experiment    5. Difficulties and Disasters in Observational Studies    6. Random Sample Versus Random Assignment | | 1. SUMMARIZING AND DISPLAYING MEASUREMENT DATA    1. Turning Data into Information    2. Picturing Data: Stemplots and Histograms    3. Five Useful Numbers    4. Boxplots    5. Traditional Measures: Mean, Variance, and Standard Deviation    6. Caution: Being Average Isn’t Normal | 1. BELL-SHAPED CURVES AND OTHER SHAPES    1. Populations, Frequency Curves, and Proportions    2. The Pervasiveness of Normal Curves    3. Percentiles and Standardized Scores    4. Z-Scores and Familiar Intervals | | 1. PLOTS, GRAPHS, AND PICTURES    1. Well-Designed Statistical Pictures    2. Pictures of Categorical Data    3. Pictures of Measurement Variables    4. Pictures of Trends Across Time    5. Difficulties and Disasters in Plots, Graphs, and Pictures    6. A Checklist for Statistical Pictures | 1. RELATIONSHIPS BETWEEN MEASUREMENT VARIABLES    1. Statistical Relationships    2. Strength versus Statistical Significance    3. Measuring Strength Through Correlation    4. Specifying Linear Relationships with Regression | | 1. RELATIONSHIPS CAN BE DECEIVING    1. Illegitimate Correlations    2. Legitimate Correlation Does Not Imply Causation    3. Some Reasons for Relationships Between Variables    4. Confirming Causation | 1. STATISTICAL SIGNIFICANCE FOR 2 X 2 TABLES    1. Measuring the Strength of the Relationship    2. Steps for Assessing Statistical Significance    3. The Chi-Square Test    4. Practical versus Statistical Significance | | 1. UNDERSTANDING PROBABILITY AND LONG-TERM EXPECTATIONS    1. Probability    2. The Relative-Frequency Interpretation    3. The Personal-Probability Interpretation    4. Applying Some Simple Probability Rules    5. When Will It Happen?    6. Long-Term Gains, Losses, and Expectations | 1. THE DIVERSITY OF SAMPLES FROM THE SAME POPULATION    1. Setting the Stage    2. What to Expect of Sample Proportions    3. What to Expect of Sample Means    4. What to Expect in Other Situations | | 1. ESTIMATING PROPORTIONS WITH CONFIDENCE    1. Confidence Intervals    2. Three Examples of Confidence Intervals from the Media    3. Constructing a Confidence Interval for a Proportion | 1. THE ROLE OF CONFIDENCE INTERVALS IN RESEARCH    1. Confidence Intervals for Population Means    2. Confidence Intervals for the Difference Between Two Means    3. Revisiting Case Studies and Examples    4. Understanding Any Confidence Interval | | 1. REJECTING CHANCE – TESTING HYPOTHESES IN RESEARCH    1. Using Data to Make Decisions    2. The Basic Steps for Testing Hypotheses    3. Testing Hypotheses for Proportions    4. What Can Go Wrong: The Two Types of Error | 1. HYPOTHESIS TESTING – EXAMPLES AND CASE STUDIES    1. How Hypothesis Tests Are Reported in the News    2. Testing Hypotheses about Proportions and Means    3. How Journals Present Hypothesis Tests | |

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| **GRADING METHODS:** |

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| **ITINERARY:** |