**Roanoke Valley Governor’s School for Science and Technology**

**AP Statistics/ Statistics I DE (MTH 245)**

**Syllabus 2023 – 2024**

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1. **Course Information**
   1. **Course Description**

**AP/College Statistics** emphasizes interdisciplinary applications built around four broad conceptual themes of exploring data, planning a study, anticipating patterns, and statistical inference. The topics include descriptive statistics, elementary probability, probability distributions, estimation, hypothesis testing, correlation and regression, analysis of variance, chi-square test, non-parametric methods, the calculus foundation of properties and formulas. Students are expected to obtain a qualifying score of 3, 4, or 5 on the AP Statistics exam at the end of this course.

**VWCC Course Description**: Presents an overview of statistics, including descriptive statistics, elementary probability, probability distributions, estimation, hypothesis testing, correlation, and linear regression. (3 Credit Hours)

* 1. **AP/College Board Objectives**
     1. **Variation & Distribution:** The distribution of measures for individuals within a sample or population describes variation. The value of a statistic varies from sample to sample. How can we determine whether differences between measures represent random variation or meaningful distinctions? Statistical methods based on probabilistic reasoning provide the basis for shared understandings about variation and about the likelihood that variation between and among measures, samples, and populations is random or meaningful.
     2. **Patterns & Uncertainty:** Statistical tools allow us to represent and describe patterns in data and to classify departures from patterns. Simulation and probabilistic reasoning allow us to anticipate patterns in data and to determine the likelihood of errors in inference
     3. **Data Based Decisions, Predictions, and Conclusions:** Data-based regression models describe relationships between variables and are a tool for making predictions for values of a response variable. Collecting data using random sampling or randomized experimental design means that findings may be generalized to the part of the population from which the selection was made. Statistical inference allows us to make data-based decisions
  2. **VWCC Learning Objectives**

1. Prepare reports using descriptive statistics both graphical and numeric presentations.
2. Carry out basic probability calculations.
3. Use the binomial and normal distributions to solve appropriate applied problems.
4. Make appropriate statistical inferences using one and two sample methods.
5. Use ANOVA for statistical inferences involving more than two populations.
6. Use a computer to obtainappropriate statistics for use in applied problems.
   1. **Gifted education strategies**
      1. **Understand the connections** between various mathematical representations:graphical, numerical, analytical, and verbal.
      2. **Communicate** mathematics both orally and in well-written sentences,including being able to explain one’s solutions to problems.
      3. Use **technology** to help solve problems, experiment, interpret results, and verify conjectures.
      4. Determine the **reasonableness** of solutions based on the context of the problem.
      5. Foster **independent** thinking and reasoning through various individual activities, such as homework, quizzes and tests.
      6. Work within **cooperative groups**, such as labs and projects, to strengthen mathematical reasoning and communication.
   2. **Text, Printed Resources, and Media Resources**

1. Primary Textbook: Bock, David E., Paul F. Velleman, and Richard D. DeVeaux. *Stats: Modeling the World*, 4th edition, 2015. Boston: Pearson.

2. Starnes, Daren S. and Josh Tabor *The Practice of Statistics, 6th edition*, 2018. New York: Bedford, Freedman & Worth.

3. Baron’s AP Statistics

4. Stat Medic AP Review

5. TI 84+ Graphing Calculator

6. Python 3.8

7. Minitab 21

1. **Grading Policy**

|  |  |
| --- | --- |
| 100-90% | **A** |
| 89-80% | **B** |
| 79-70% | **C** |
| 69-60% | **D** |
| 59-0% | **F** |

**a. Grading Scale**

1. **Types of Evaluations**
   1. **Tests:** Tests will be administered after several integrated competencies havebeen mastered. Tests are designed to help the students learn to think about the broad connections between topics. Tests will be worth 70 – 120 points each.
   2. **Quizzes:** Quizzes will be given occasionally on vocabulary and coursecontent throughout the year. Quizzes will be worth up to 40 points each.
   3. **Labs/Cooperative Learning Activities/Projects:** Labs, cooperative learningactivities, and projects (utilizing Minitab, TI-84 graphing calculators, and Python) will be assigned throughout the year to enhance, reinforce and strengthen the students’ understanding of statistical concepts.
   4. **Homework:** Homework is an integral part of this course and it is extremelyimportant that it be completed on time. MyLab will be utilized for chapter homework assignments via Canvas. Homework will be checked on a weekly basis. Homework will not be accepted for a late grade. See below for exceptions.
   5. **Semester Exam:** At the end of each semester, acumulativeexam will begiven during the scheduled exam period. Each exam will include some of the released questions from previous AP Statistics exams.
2. **Semester Grade Determination**

|  |  |
| --- | --- |
| **Category** | **Weight** |
| Tests | 35% |
| Quizzes | 25% |
| Labs | 20% |
| Homework | 5% |
| Semester Exam | 15% |

* 1. **Final Grade Determination**

The final grade is the average of the two semester grades. Students who fail to maintain an average of 80% or above will be subject to the RVGS probationary policy.

1. **Class Policies and Procedures**
   1. **Absences and Tardies:** The policy in the RVGS student handbook will be followed.
   2. **Make-up Work:** Any assignment missed due to any type of **excused** absence may bemade up. You will not be allowed to make up work without a note. It is up to the student to check Canvas to find out about missed work and then approach the teacher to arrange a suitable time for makeup work. If you know you are going to be absent, you are responsible for getting the assignments ahead of time and submit them the day you return. If you are absent the day prior to an assessment of any kind (i.e. quiz, test, exam), **including review days**, you will be expected to take the assessment on the scheduled day.
   3. **Late-work policy: L**ate Lab Assignments will lose 10% credit for each day (including non-school days) late. A student may receive up to 50% on a late homework assignment if a student communicates with the teacher *prior to* coming to class.
   4. **Cheating:** The policy in the RCPS student code of conduct will be followed.
   5. **Technology Policy:** The RCPS Acceptable Use Policy and the RVGS studenthandbook policy will be followed.
   6. **Cell Phone Policy:** The policy in the RVGS student handbook for cell phones andelectronics will be followed. If parents need to contact a student during class, they should call the front office.
   7. **Extra help:** It is inevitable that there will be times when a student may not grasp aconcept the first time. Extra help is always available, but it is up to the student to seek help as soon as possible. The following options are available to the students, but they should be sure to make arrangements with their teacher to make sure that he or she is available at a given time:
      1. Before School (prior arrangements must be made)
      2. After School (prior arrangements must be made)
      3. Other Arrangements

* 1. E-mail: Emails received during the scheduled school day will be answered in a timely fashion; emails received outside of the scheduled school day will be answered at the teacher’s earliest convenience.

1. **Parent & Student Vue:** Grades are available at all times through StudentVue. When viewing your grades, understand that:
   * 1. A blank in the grade book means that the assignment has not yet been graded. Teachers will have all assignments graded within 5 school days of the due date (with the exception of very long assignments which will be graded within 10 school days). You may have a blank because the teacher has not graded the class set or because your assignment was turned in after the due date. Blanks do not count as zeros in your average.
     2. A zero in the grade book means that you have earned a zero on the assignment. Cases in which this might occur include submitting incorrect answers to an assignment or submitting an assignment past the due date.
     3. An excused (EX) in the grade book means that you are excused from the assignment without penalty.
2. **Interim Reports:** A hard-copy of your current grade will be given to you to takehome three times during each semester (see dates on the school calendar). The interim report is a snapshot of the current class average. Please feel free to discuss your report with your instructor.
3. **Student Performance Strategy:** Interventions will be implemented at the teacher’sdiscretion or in the event that the student's grade falls below an 80.
4. **General classroom procedures:**
   * 1. Bring your laptop and calculator to class **every day** although we may not use it every day. Always keep your calculator and laptop charged (or new batteries) and in excellent working condition.

1. All work completed in class for individual evaluation will be based on the premise that you have neither given nor received help. When you sign your name on the paper, you are agreeing to this premise.
2. Please do not wait until the day an assignment is due to ask questions about it. Ask questions and get help and clarifications ahead of time.
3. The rules of common courtesy will be observed in the classroom at all times. When the teacher is speaking, students should be attentive and listening. Likewise, if one of your fellow students is speaking, you should provide them with the same courtesy and respect that you expect to receive.
4. Being on time and using available time to the fullest are important skills. Students are expected to meet all deadlines and make proper use of class time
5. SEC Notification: Per Virginia Code (§ 22.1-16.8), parents must be aware of the use of any instructional materials with explicit content. No explicit materials are used in this course.

**All students must fill out an online Virginia Western Application and MUST have an EMPL ID number to be enrolled in any dual class.**

***Virginia Western Community College Policies***

**Academic Dishonesty:**

Academic dishonesty is not tolerated at Virginia Western; violations of this policy can result in disciplinary actions, including suspension or expulsion from the college. According to The Virginia Western Student Handbook, academic dishonesty includes, but is not limited to, the following:

\* Cheating on a test by giving, receiving, offering, and/or soliciting information.

\* Buying, selling, stealing, or soliciting any material purposed to be a part of an assignment.

\* Plagiarism (taking and using the ideas of another as one’s own).

\* Unauthorized use of materials, notes, or other aids during a test.

For more information, read the “Conduct” section of the VWCC Student Handbook

**ADA Statement:** Questions or concerns about the college’s and student’s rights and responsibilities regarding persons with disabilities may be directed to the 504/ADA Coordinator. The Americans with Disabilities Act of 1990 (ADA) and section 504 of the Rehabilitation Act provides protection from illegal discrimination for qualified individuals with disabilities.

**Copyright Statement:** The materials for this course are only for the use of students enrolled in this course for purposes associated with the course, and may not be retained or further disseminated.

Here are some VWCC resources that may be useful to you!

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| Emergency Alert Information | <http://www.virginiawestern.edu/police/crisismanagement.php> |
| Campus Safety Video | <http://www.virginiawestern.edu/police/safety.php> |
| Student Consumer Information | <http://www.virginiawestern.edu/services/studentconsumerinfo.php> |
| VWCC Withdrawal Policy | <http://www.virginiawestern.edu/services/withdrawal.php> |
| VWCC Student Resources | <http://www.virginiawestern.edu/services/resources.php> |
| VWCC Student Rights and Responsibilities | <http://www.virginiawestern.edu/services/handbook/studentconduct.php> |
| VWCC Student Conduct Policy | <http://www.virginiawestern.edu/services/handbook/studentconduct.php> |
| VWCC Student Grievance Procedures | <http://www.virginiawestern.edu/services/handbook/grievance.php> |
| Title IX: Policy on Sexual Violence, Domestic Violence, Dating Violence, and Stalking | <http://www.virginiawestern.edu/services/intervention/sexualharassment.php> |