

OAKLAND UNIVERSITY  
COLLEGE OF ARTS AND SCIENCES  
DEPARTMENT OF MATHEMATICS AND STATISTICS

COURSE INFORMATION SHEET

COURSE: STA 2220, Statistics, 4 Credits, Winter 2018, 10 – 11:47 pm Tuesday and Thursday  
Office hours: 9:30 – 11 am, M & W, Rm 442, MSC(Mathematics and Science Center)

Instructor: Tom VanHouten

E-mail: vanhoute@oakland.edu

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| CATALOG DESCRIPTION        | Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; Normal distribution; probability and simulation; and confidence intervals, P-values, and hypothesis testing. Satisfies the university general education requirement in the formal reasoning knowledge foundation area.  |
| PREREQUISITE               | One of the following prerequisites is required for enrollment in STA2220: <ul style="list-style-type: none"> <li>• A 2.0 or better in MTH 0662 (formerly MTH 062 formerly MTH 012);</li> <li>• An equivalent course at another school; or</li> <li>• A placement of R on the department's placement test.</li> </ul> Prerequisites are strictly enforced: failure to satisfy the prerequisite or failure to provide in a timely manner documentation verifying satisfaction of the prerequisite will result in cancellation of your course registration.<br>It is assumed that if you satisfy one of the above prerequisites, you have a good working knowledge of intermediate algebra. It is not the responsibility of your instructor to re-teach these topics if you have forgotten them because you have not had math for 5 years.<br>Students are sometimes unaware, until after they have taken a college mathematics course, how much more emphasis is placed in college courses on understanding and applying concepts, as opposed to learning to perform routine computations. Indeed, understanding of mathematical concepts and their applications are the central issues of college-level work. Students who have not been in such courses often underestimate the amount of time and hard work need to succeed. |
| COURSE OBJECTIVES          | The primary goal of this course is to introduce the concept of statistical theories and the usage of statistical methods to students with minimal mathematical sophistication. The successful student will develop an appreciation and understanding of (1) purposes and methods of exploratory data analysis, (2) probability theory and its role in our daily lives, (3) basic statistical inference including sampling techniques, sampling distributions, estimation, and testing, and (4) statistical problem solving such as correlation studies and analysis of qualitative data.  |
| REQUIRED                   | 1. One semester of Webassign homework and ebook. ~\$100.<br>2. The scientific calculator TI 30X IIS but no graphing calculator.<br><b>OPTIONAL:</b> <i>The Basic Practice of Statistics</i> , 7 <sup>th</sup> edition, by David S. Moore, William I. Notz, and Michael A. Fligner, published by W. H. Freeman (2013). <b>(The ebook will be in Webassign so unless you have trouble looking at a computer screen, you do not need a hardcopy of the book)</b>   |
| SYLLABUS                   | For a day-to-day list of topics, see "STA 2220 Schedule."   |
| <b>Classroom Etiquette</b> | Proper classroom behavior is an essential piece in the creation of a total learning environment. Please be mindful of the following: <ol style="list-style-type: none"> <li>1) Be on time for class whenever possible.</li> <li>2) Don't interrupt a classmate when he/she has the floor.</li> <li>3) Turn cell phones and pagers off during class. It bothers other students who are trying to listen to the lecture if you're texting and checking your email.</li> <li>4) Besides a calculator, no electronic devices may be used during a test or exam.</li> <li>5) No plugs of any kind are allowed in your ears during class.</li> </ol>  |
| DROPPING THE COURSE        | The Department of Mathematics and Statistics is committed to achieving the goal of an academically sound freshman and sophomore mathematical sciences curriculum in which most conscientious Oakland University students can expect to be successful. If you are considering dropping the course and wish to discuss the matter further, you are encouraged to contact your instructor.   |
| EMERGENCY CLOSING          | If the University is closed at the time of a scheduled quiz or examination (for example, because of snow), the quiz or exam will be given during the next class period when the university reopens. The Oakland University emergency closing number is 370-2000.  |

ACADEMIC  
HONESTY

Cheating is a serious academic crime. Oakland University policy requires that all suspected instances of cheating be reported to the Academic Conduct Committee for adjudication. Anyone found guilty of cheating in this course will receive a course grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee. You must read the Academic Conduct Regulations of Oakland University. Working with others on homework is not cheating unless indicated by the instructor; handing in an assignment that has essentially been copied from someone else is cheating. Looking at someone else's work during an exam is cheating. Receiving help from someone else or consulting unauthorized material during an exam is cheating. Providing such assistance for someone else also constitutes cheating.

### FERPA Reminder

Per the Family Educational Rights and Privacy Act(FERPA), college personnel are not allowed to release students' personnel information to anyone, including other students, their parents, brothers and sisters, aunts and uncles, grandparents, their pastor, their lawyer, or their judge.

### Incompletes

An incomplete (I) grade may be assigned if the following conditions are met:

-The situation, which prevents the student from completing the course during the regular term, must be outside the student's control.

-At least 75% of the course must already have been successfully completed(passed) by the student to be considered for an "I" grade. No tests will be retaken.

-The instructor must be informed of the circumstances and must agree to award an "I" grade prior to the end of the term.

-The student and the instructor must complete the College Agreement Form for an "I" grade prior to the end of the term.

### General Education Learning Outcomes

This class addresses the following general education learning outcomes: The student will demonstrate

- a) knowledge of one or more formal reasoning systems such as computer programming, mathematics, statistics, linguistics, or logic. Particularly, successful students in this course will demonstrate knowledge of statistical thinking, and be able to apply it in order to read, understand, model, and solve problems across a variety of applications. Every section of the text includes examples and exercises that involve applying statistical reasoning in order to reach conclusions based on data.
- b) Application of formal reasoning to read, understand, model, and solve problems across a wide variety of applications.

This course contributes to the Natural Science and Technology objective demonstrating the ability to develop and test hypotheses, draw conclusions, and report findings. Statistical reasoning is one of the foundations of the scientific method.

This course addresses the following general education "Cross-Cutting Capacities":

- 1) **Critical Thinking.** Solving statistics problems involves the following skills identified as part of the capacity for critical thinking: (a) ability to clearly formulate questions and problems, (b) ability to gather and assess relevant information using abstractions to interpret it effectively, (c) ability to come to well-reasoned conclusions and solutions and test them against relevant criteria, and (d) ability to recognize and assess the assumptions, implications, and consequences of alternative theories.
- 2) **Social Awareness.** Many examples in the course illustrate the application of statistical methods in order to better understand important social issues. ("Statistical thinking will one day be as necessary for effective citizenship as the ability to read and write" H.G. Wells, 1904)

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| GRADING<br>CRITERIA<br>AND<br>SCALE             | <p style="text-align: center;"><u>Grading Criteria</u></p> <p>Tests: 60%</p> <p>Homework: 10%</p> <p>Final Exam: 30%</p> <p>Total: 100%</p>  | <p style="text-align: center;"><u>Grading Scale</u></p> <p>95% - 100%: 4.0</p> <p>80% - 94%: 3.0 – 3.9</p> <p>65% - 79%: 2.0 – 2.9</p> <p>50% - 64%: 1.0 – 1.9</p> <p>Less than 50%: 0.0</p> |
| GRADE<br>COMPONENTS                             | <p>There are three components to your grade:</p> <ol style="list-style-type: none"> <li>1. Three tests worth 100 points each.</li> <li>2. One final exam worth 200 points</li> <li>3. Homework assignments worth various amounts of points each.</li> </ol> <p>A test point is not equal to a final exam point is not equal to a homework point. Web assign will keep track of your grade according to the grading criteria above.</p>   |  |
| TESTS   | <p>There will be three tests. Their time length will be one class period. Each will be worth 20% of your grade. The second and third of these tests may include material covered on previous tests. All tests and final exam will:</p> <ul style="list-style-type: none"> <li>- Be closed book, closed note, no formula sheet;</li> <li>- Reflect both the content and general objectives of the course.</li> </ul>  |  |
| FINAL EXAM                                      | <p>The final exam is comprehensive and is worth 30 % of the course grade. The material covered after the third test may have a greater weight on the final exam than previous material. The date, time, and location of the final is in this information sheet and is different than regular class time. The final exam will reflect both the specific content and broad educational objectives of the course.</p>   |  |
| <b>How to be<br/>successful in my<br/>class</b> | <ol style="list-style-type: none"> <li>1) <b>Attend class:</b> Learning the material becomes more difficult if you are not in class.</li> <li>2) <b>Ask plenty of questions:</b> There are no stupid questions. Ask whatever question you like, whenever you like.</li> <li>3) <b>See me as soon as you are having Math difficulties:</b> Math is one of those subjects where understanding the previous material is necessary in order to move onto the new stuff.</li> <li>4) <b>Take notes in lecture and read the textbook:</b> Reading the sections before and after lecture will help your understanding of the material.</li> <li>5) <b>Do the homework!</b></li> <li>6) <b>Take advantage of the many resources available.</b></li> <li>7) <b>Form Study Groups.</b></li> <li>8) <b>Remember, you should be doing at least 2 hours of work outside of class for every hour inside of class (even if you are taking 19 credits and working 40 hours a week).</b></li> </ol> |  |
| ATTENDANCE                                      | <p>Students are expected to attend each class meeting. Attendance will be taken during every class meeting. A considerable amount of material will be covered during each class meeting. If you do miss a class, it is <b>your</b> responsibility to complete all missed work covered that day. In addition, you are responsible for all information given in class regarding course material, test dates, homework assignments, etc. Get to know someone in class that you can email or call for this information and for class notes that you might want to copy. Please don't come to class late or leave early.</p>  |  |
| CALCULATOR<br>USAGE                             | <p>You will be permitted to use a calculator on all exams. When using a calculator on an exam, be sure to show all the mathematical work necessary for setting up a calculation before using the calculator, or you will not receive full credit.</p>  |  |
| MAKE-UP<br>POLICY                               | <p>No make-up tests, quizzes, or final exam will be given. There are no curves on tests. There are absolutely no make-up tests for any reason. If you know of a problem before the test, talk to me (or email me) about it. If it is reasonable, we can arrange an alternative date in the week before the test.</p>   |  |
| IMPORTANT<br>DATES                              | <ul style="list-style-type: none"> <li>• January 17, 4 pm: The last day for 100% tuition reimbursement, registration, to add a class, and a "no-grade" drop.</li> <li>• March 14, 4 pm: The last day for official withdrawal, and the last day drops are accepted.</li> </ul>  |  |

STA 2220 SCHEDULE – Winter 2018

Day Due Date Section Written assignments must be in your own hand writing. No copies. Due time is 10 a.m. on the day it is assigned. Answers to the odd problems are in the back of the ebook.

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|-----------|-------------|--------------------|--|
| Th        | 1-4         | Intro<br>Chapter 1 | Introduction<br>Read Chap 0 & 1  |
| Tu        | 1-9         | Chapter 1          | Web assignment 1<br>Written problems 1: 1.26a ,1.34, 1.36 shape only                         |
| Th        | 1-11        | Chapter 2          | Read Chapter 2<br>Web assignment 2<br>Written problems 2:2.10a,b,2.12,2.40,2.44(4 steps)     |
| Tu        | 1-16        | Chapter 3          | Read Chap 3<br>Web assignment 3A<br>Written problems 3: 2.52,3.28,3.46,3.48 plus ditto       |
| Th        | 1-18        | Chapter 4          | Web assignment 3B<br>Written problems 3:3.33,3.35,3.37,3.39a plus ditto                      |
| Tu        | 1-23        | Chapter 4          | <b>Read Chap 4</b><br><b>Web assign 4</b><br><b>Written problems 4: 4.26 plus ditto</b>      |
| <b>Th</b> | <b>1-25</b> | Chapter 5          | Read Chap 5<br>Web assignment 5<br>Written problems 5:5.30 plus ditto                        |
| Tu        | 1-30        | Chapter 8          | Read Chap 8<br>Web assignment 8<br>Written problems 8:8.40 plus ditto                        |
| Th        | 2-1         |                    | <b>Exam #1 (Chapters 1 – 5) 100 points(20% of final grade)</b>                               |
| Tu        | 2-6         | Chapter 9          | Read Chapter 9<br>Web assignment 9<br>Written problems 9: 9.36,9.46,9.48,9.50a,b             |
| Th        | 2-8         | Probability        |  |
| <b>Tu</b> | <b>2-13</b> | Probability        |  |
| Th        | 2-15        | Probability        |  |
| Tu        | 2-27        | Chapter 12         | Read Chapter 12<br>Web assignment 12<br>Written assignment 12: 12.36,12.42,12.48,12.51,12.52 |
| Th        | 3-1         | Chapter 13         | Read Chapter 13.<br>Web assignment 13<br><b>Written problems 13:13.30,13.32,13.34,13.48</b>  |
| <b>Tu</b> | <b>3-6</b>  | Chapter 14         | Read Chapter 14.<br>Web assignment 14<br>Written assignment 14:14.22,14.26,14.28,14.32       |

Th 3-8 Chapter 15 Read Chapter 15.

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| Tu        | 3-13        |            | <b>Exam #2 (Chapters 8,9,12,13,14) 100 points.(20% of final grade)</b>  |
| Th        | 3-15        | Chapter 15 | Written assignment 15:15.10,15.36<br>Web assignment 15A<br>Web assignment 15B   |
| Tu        | 3-20        | Chapter 16 | Read Chapter 16.<br>Web assignment 16<br>Written assignment 16:16.8,16.10,16.22   |
| Th        | 3-22        | Chapter 17 | Read Chapter 17.<br>Web assignment 17<br>Written assignment 17A: 17.14,17.18<br>Written assignment 17B:17.30,17.32,17.42                                      |
| <b>Tu</b> | <b>3-27</b> | Chapter 18 | Read Chapter 18. (except The power of a test pp. 420 – 428)<br>Web assignment 18<br>Written assignment 18A:ditto<br>Written assignment 18B:18.40,18.42,18.52a |
| Th        | 3-29        | Chapter 20 | <b>Read Chapter 20.</b><br><b>Web assignment 20</b><br><b>Written assignment 20:20.28,20.30,20.32,20.44,20.46,20.50,20.52</b>                                 |
| Tu        | 4-3         |            |   |
| Th        | 4-5         |            | <b>Exam#3 (Chapters 15 – 18) 100 points (20% of final grade)</b>  |
| Tu        | 4-10        | Chapter 21 | Read Chap 21<br>Written assignment 21:21.30,21.32,21.34,21.38,21.40   |
| Th        | 4-12        | Chapter 22 | Read Chapter 22<br>Written assignment 22:22.26,22.28,22.30,22.34,22.38  |

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| Tu  | 4-17 | Chap 22 |   |
| Fri | 4-20 |         | <b>Final Exam (through Chapter 22) 200 points(30% of final grade)</b><br><b>8:00 – 10:45 a.m.</b> |

### CHANGES TO SYLLABUS

All test/quiz dates are considered tentative and subject to change. Students will be notified during the class period if there is a need to change any test/quiz date or homework assignment. Any substantial change made to this syllabus, such as grade calculation, will be provided in writing and documented with the math department.

Webassign COURSE COMPONENT

To sign up for Webassign go to [www.webassign.net](http://www.webassign.net) on your computer.

You will need the following **class key**:oakland 2015 1605

You can start with a free trial, but you will eventually have to pay \$75 for access to your homework and ebook.

For good link to show you how to log in anytime, how to get to homework and how to see you grade, go to:  
[assets.cengage.com/pdf/gui\\_ewa-stu-brief-user-guide.pdf](http://assets.cengage.com/pdf/gui_ewa-stu-brief-user-guide.pdf)

During the registration process, you will be given a login name and password. You will have the opportunity to change your password if you wish. **Write down your login name and password, and keep them in a safe place.**

When looking at your scores on webassign, the points for homework are not equivalent to the points for the Exams. Your homework is worth only 10% of your grade.