



UNIVERSITY of HAWAII®  
**WINDWARD**  
COMMUNITY COLLEGE

## **MATH 115 INTRODUCTION TO STATISTICS AND PROBABILITY**

3 Credits (CRN 64481)

Online Course

INSTRUCTOR:	Andrew Won
OFFICE:	Hale Kako'o 107
OFFICE HOURS:	MTWR 11:30~12:30 P.M.
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EFFECTIVE DATE:	August 20~December 14, Fall 2018

### **WINDWARD COMMUNITY COLLEGE MISSION STATEMENT**

*Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Ko'olau region of O'ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

### **CATALOG DESCRIPTION**

Utilizes basic statistical topics including measures of central tendency and dispersion, classification of variables, sampling techniques, elementary probability, normal and binomial probability distributions, tests of hypothesis, linear regression and correlation in order to solve problems. (3 hours lecture)

Pre-Requisite(s): Grade of C or better in Math 25, 26, 28, 29, 75X or higher or equivalent, satisfactory math placement test score, or consent of instructor.

WCC: FQ

### **Activities Required at Scheduled Times Other Than Class Times**

Homework; consultation with instructor.

### **STUDENT LEARNING OUTCOMES**

As a result of taking this course, students can expect to attain the following outcomes:

1. Calculate and interpret statistical information.
2. Calculate and interpret probabilities for binomial or normal distributions, including the use of the Central Limit Theorem.
3. Demonstrate the use of inferential statistics.
4. Utilize appropriate statistical terminology and mathematical symbols to effectively communicate mathematics in written and/or oral form.

Note: All SLOs assessments are embedded in class activities, homework, or Exams.

## FOUNDATIONS HALLMARKS

Math 115 fulfills 3 credits of the General Education requirements (Foundations: Quantitative) for both an A.A. degree at WCC and at other colleges in the UH system. Consequently, it meets the following hallmarks of the symbolic reasoning requirement

1. Students will be exposed to the beauty, power, clarity and precision of formal systems.
2. Instructors will help students understand the concept of proof as a chain of inferences.
3. Instructors will teach students how to apply formal rules or algorithms.
4. Students will be required to use appropriate symbolic techniques in the context of problem solving, and in the presentation and critical evaluation of evidence.
5. The course will include computational and/or quantitative skills.
6. Instructors will build a bridge from theory to practice and show students how to traverse this bridge.

## COURSE CONTENT

**Concepts or Topics** (*What students should know or understand*)

- Data Collection
- Descriptive Statistics
- Probability
- Discrete Probability Distributions
- The Normal Probability Distribution
- Sampling Distributions
- Estimating the Value of a Parameter
- Hypothesis Tests Regarding a Parameter
- Inferences on Categorical Data

**Skills or Competencies** (*What students should be able to do in order to complete the student learning outcomes*)

1. a positive, inquiring attitude towards
2. learning mathematics;
3. setting aside adequate time for studying and working of problems;
4. reading the text carefully and making use
5. of other learning materials whenever
6. necessary;
7. seeking assistance from the instructor and the Math Lab personnel whenever necessary;
8. completing assignments by the designated date;
9. regular class attendance, participation and maintaining accurate class notes.

## COURSE TASKS

The mode of instruction will be primarily through weekly activities, with focus on logical and analytical thinking to solve problems involving the concepts of statistics and. The new material will be introduced by the instructor in every lecture, and then the student will apply the new material to textbook problem sets and hands-on activities and realistic homework problems. The goal for this course is not just getting the correct answer but to build the ability to explain how to obtain the solution and why the solution is correct. Students will be expected to work both independently and collaboratively during weekly activities.

The student will demonstrate competency in the objectives by participating in and completing all weekly activities, by completing and submitting in all homework assignments as scheduled, by taking midterm exams, and by taking a final exam over concepts and skills covered in the entire course. The midterm exams and the final exam are to be taken in a testing center without any references unless otherwise stipulated by the instructor.

This course syllabus is subject to change.

It is the responsibility of the student to obtain and complete all assignments that are given in any week for which the student is unable to attend. Unless permission is granted by the instructor beforehand, assignments and exams must be completed and submitted to the instructor at the specified date and time.

Points will be assigned to each of the following course work:

- **Weekly Activities.** As the primary mode of instruction for this course is weekly activities, online participation in Lulima will be required throughout the semester. All attachment must be in your own hand-writing and be saved as a single PDF file before posting. **There will be no make-up for missed weekly activities.** Weekly activities may include, but not limited to:
  - Problem solving
  - Short reports
  - Teaching peers
  - Presentation
  - Group discussion
- **Homework.** Homework will be assigned weekly. All homework must be submitted on time in the appropriate area in Lulima. All homework must be in your own hand-writing and be saved as a single PDF file before submitting. **No late homework will be accepted.**
- **Midterm Exams.** There will be three midterm exams each covering specific chapters of the textbook (i.e., these exams will not be cumulative). Although announcements will be made in advance, it is your responsibility to check Tentative Schedule below for midterm exam dates. All midterm exams will be proctored at a local testing center of your choice and must be taken on one of the days specified. (See <http://www.hawaii.edu/dl/testcenters>.)
- **Project.** There will be a short project. Detailed instructions will be given in the latter part of the semester. See Tentative Schedule below.
- **Final Exam.** There will be one cumulative exam at the end of the course. See Tentative Schedule below for the final exam date. Final Exam will be proctored at a local testing center of your choice and must be taken on one of the days specified. (See <http://www.hawaii.edu/dl/testcenters>.) **If you do not take the final exam, you will automatically receive a grade of F for this course.**
- **Make-up.** Make-up opportunity for a midterm exam or final exam will be possible only upon a timely presentation of a serious and justified explanation of the student's absence from the class test. The instructor has the right to request documentation of the student's absence from the class and to determine if the absence from the class test is justified. A make-up test must be taken by the deadline set by the instructor.

**Notes:**

- If you are unable to attend class on an exam day, discuss your situation with the instructor as soon as possible **before** the exam day. It may be possible for you to take the exam earlier than the specified day/time.

- If you unexpectedly must be absent on an exam day, notify the instructor before the end of the day via email. If the reason is justified, then a make-up exam will be scheduled.
- For each student, no more than one make-up exam may be granted.
- There are no re-tests in this course.

- **Evaluation.**

Class Activities	10%
Homework	20%
Project	10%
Midterm Exams	40%
Comprehensive Final Exam	20%

- **Course Grade.**

Letter Grade	Definition
A	90%-100% of the cumulative points possible
B	80%-89% of the cumulative points possible
C	70%-79% of the cumulative points possible
D	60%-69% of the cumulative points possible
F	Less than 60% of the cumulative points possible
CR	70% or above of the cumulative points possible
NC	Less than 70% of the cumulative points possible
N	See definition listed below
W	Official Withdrawal
I	See below

- CR/NC grades require written instructor consent. Students must apply for CR/NC grading option at the Admissions Office by the posted deadline. If a student does not apply for CR/NC grading option at the Admissions Office by the required deadline and if s/he does not withdraw, a letter grade (A, B, C, D, or F) will be assigned for the course.
- The N grade indicates that the student has worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress. However, either the student has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level, or the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies.
- The W grade is given only when the student officially withdraws from the course by the posted deadline.
- *The I grade is a temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond his or her control. A student may qualify for the I grade if (a) they are unable to take the final exam and (b) taking the final exam could possibly raise their course grade. The I grade is given only after a student's request and the instructor's approval.*

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## LEARNING RESOURCES

Textbook: Sullivan, M. 2018 *Fundamentals of Statistics*. 5<sup>th</sup> ed. Pearson.

Required Technology Tool: Two-variable statistical calculator.

MATH LAB: La'akea 220 – free drop-in tutorial assistance

Brainfuse Online Tutorial Assistance: <https://windward.hawaii.edu/brainfuse/>

OLA (UH online tutoring program): <https://manoa.hawaii.edu/ola/>

TRiO Student Support Services: [https://windward.hawaii.edu/trio/Student\\_Support\\_Services.php](https://windward.hawaii.edu/trio/Student_Support_Services.php)

Wolfram Alpha: <http://www.wolframalpha.com>

Khan Academy Videos: <https://www.khanacademy.org/math>

Ka Piko is WCC's academic support hub. Please visit: <https://windward.hawaii.edu/kapiko/>

## ADDITIONAL INFORMATION

- **Grading on Homework, Weekly Activities, Midterm Exams, and Final Exam.** To receive full marks for problems done on any graded course work, you must show your work neatly and completely as well as provide clear written explanations, in full sentences, when it is asked for. Partial credit may be awarded.
- **Absences.** It is your responsibility to participated in all weekly activities. Even if you are absent, you are responsible for those topics, activities, and examples covered in the week you missed. Furthermore, you are responsible for obtaining any important announcements and assignments given during the week you missed. If you are absent frequently or for an extended period of time, contact the instructor as soon as possible to discuss your situation.
- **Student Expectations.** You need to login the course (Laulima) at least 3 times each week and spend at least 12 hours per week on the course. Homework must be turned in on time and exams taken during the days specified.
- **Practice.** For each chapter, as you read through each section, it is recommended that you write down the words, phrase or math symbols and their meanings, formulas, and properties/rules that are important for each activity. It is important for you to know these.

After each section has been covered in class, try all odd-numbered problems in EXERCISES at the end of the section. The answers to these selected problems are available in the back of the textbook. Then do as many other problems in the same activity as you feel is necessary to help you learn and understand the material and become comfortable with the concepts and/or properties. If you have difficulty solving problems in the exercises, review carefully the discussions in the activity and your class notes. If, after checking these sources and trying to find your mistakes, you are still unable to solve a problem correctly, make a note of the exercise number so that you can ask someone for help with that problem. You are also encouraged to reach out to the instructor for additional assistance.

Mathematics is not a spectator sport. To succeed in mathematics, you must do problems. It is often necessary to practice a skill more than the instructor requires. For example, a textbook may provide 50 practice problems in a section and the instructor may assign only 25 of them. However, some students may need to do 30, 40, or all problems.

- **Laulima.** All instructions, including discussions and weekly activities, will be posted in Laulima each Monday, unless otherwise announced. Although there will be no formal

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lecture, a brief note will be given each week. The syllabus, course calendar, homework schedule, grades, etc. are all viewable through Laulima. Check Laulima frequently to stay up to date. I'll be logging in at least once a day Monday through Friday. **(There will be no instruction on weekends: all questions directed to the instructor must be posted in the appropriate area in Laulima by the early Friday afternoon. Questions posted in the late afternoon on Friday or on weekends will be replied on the following Monday.)**

- **Calculators.** A calculator with two-variable statistical feature is required in this course.
- **Communication.** It is your responsibility to stay in communication with the instructor. The instructor may need to contact you throughout the semester and will do so via email and/or phone. It is your responsibility to check your UH email on a regular basis.
- **Student Conduct.** Please respect your fellow students (peers) and the instructor and act accordingly.
- **Electronic Devices.** The usage of electronic devices, including two-way communications devices such as cell phones, is prohibited during any proctored exams. (Cell phones must be silenced and put away when entering the testing room.)
- **Academic dishonesty will not be tolerated.** All suspected cases will be investigated and reported to the Vice Chancellor for Student Affairs. Punishments will vary, but they may include failure to the course. See <http://windward.hawaii.edu/Policies/> for more information on the UH system-wide student conduct code.
- **MySuccess.** At Windward community college, we want every student to be successful. MySuccess is a system wide effort that seeks to support students early in the semester when they first begin having difficulty in class. If the instructor feels that you are having difficulty in this course within the first few weeks of the semester (e.g. missing class, missing assignments, or low test scores) and that you would really benefit from being connected to resources outside of the classroom, the instructor may refer you to your assigned counselor. Once referred, MySuccess will:
  - Call you and send an email to your Hawaii.edu account to let you know about the referral from the instructor; and
  - Have the MySuccess team follow up with you by phone or email to find out what kinds of help you might need and connect you with the necessary resources to help you devise a strategy for success.

If the instructor refers you to your assigned counselor, please know that the instructor is doing so to connect you with all the help you may need to do well this course. Please be advised that your success in this course is of utmost importance.

### DISABILITIES ACCOMMODATIONS

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, [lemke@hawaii.edu](mailto:lemke@hawaii.edu), or you may stop by Hale 'Ākoakoa 213 for more information.

### TITLE IX

Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual

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harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: [https://windward.hawaii.edu/Title\\_IX/](https://windward.hawaii.edu/Title_IX/).

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235- 7468 or [karlas@hawaii.edu](mailto:karlas@hawaii.edu) or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235- 7354 or [kaahualo@hawaii.edu](mailto:kaahualo@hawaii.edu). To make a formal report, contact the Title IX Coordinator at 808-235-7393 or [wcctix@hawaii.edu](mailto:wcctix@hawaii.edu).

### ACADEMIC INTEGRITY

Work submitted by a student must be the student's own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

Students can upload papers to <http://www.TurnItIn.com> to have papers checked for authenticity, highlighting where the paper potentially fails to appropriately reference sources.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

### ALTERNATE CONTACT INFORMATION

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121  
Phone: 808-235-7422  
Email: [wccaa@hawaii.edu](mailto:wccaa@hawaii.edu)

### Tentative Schedule (Subject to Change)

HW sets will be given each week.

**Exam 1, 2, 3, and Final Exam must be taken at a testing center on one of the specified dates.**

Week of	Activities and Discussions (HW=Homework)
AUG 20	<ul style="list-style-type: none"> <li>• Orientation/Questionnaire</li> <li>• Provide the location and contact information of your testing center if you are a non-WCC student. (See the related forum topic in Week 1 in Lulima.) All WCC students must take exams at WCC Testing Center.</li> <li>• Chapter 1,2</li> </ul>
AUG 27	<ul style="list-style-type: none"> <li>• HW 1 due (Midnight Monday)</li> <li>• Chapter 3</li> </ul>
SEP 3	<ul style="list-style-type: none"> <li>• <b>No instruction</b> (Labor Day, SEP 3)</li> </ul>

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	<ul style="list-style-type: none"> <li>• HW 2 due (Midnight Tuesday)</li> <li>• Chapter 3</li> </ul>
SEP 10	<ul style="list-style-type: none"> <li>• HW 3 due (Midnight Monday)</li> <li>• <b>Exam 1 (CH1-3; proctored; must be taken on 9/10, 9/11, or 9/12)</b></li> <li>• Chapter 5</li> </ul>
SEP 17	<ul style="list-style-type: none"> <li>• HW 4 due (Midnight Monday)</li> <li>• Chapter 6</li> </ul>
SEP 24	<ul style="list-style-type: none"> <li>• HW 5 due (Midnight Monday)</li> <li>• Chapter 7</li> </ul>
OCT 1	<ul style="list-style-type: none"> <li>• HW 6 due (Midnight Monday)</li> <li>• Chapter 8</li> </ul>
OCT 8	<ul style="list-style-type: none"> <li>• HW 7 due (Midnight Monday)</li> <li>• <b>Exam 2 (CH5-8; proctored; must be taken on 10/8, 10/9, or 10/10)</b></li> <li>• Chapter 9</li> </ul>
OCT 15	<ul style="list-style-type: none"> <li>• HW 8 due (Midnight Monday)</li> <li>• Chapter 9</li> </ul>
OCT 22	<ul style="list-style-type: none"> <li>• HW 9 due (Midnight Monday)</li> <li>• Chapter 10</li> </ul>
OCT 29	<ul style="list-style-type: none"> <li>• HW 10 due (Midnight Monday)</li> <li>• Chapter 10</li> </ul>
NOV 5	<ul style="list-style-type: none"> <li>• <b>No Instruction</b> (Election Day, NOV 8)</li> <li>• Review</li> <li>• Project explained.</li> </ul>
NOV 12	<ul style="list-style-type: none"> <li>• <b>No Instruction</b> (Veteran's Day, NOV 12)</li> <li>• HW 11 due (Midnight Tuesday)</li> <li>• <b>Exam 3 (CH9,10; proctored; must be taken on 11/12, 11/13, or 11/14)</b></li> <li>• Chapter 4</li> </ul>
NOV 19	<ul style="list-style-type: none"> <li>• HW 12 due (Midnight Monday)</li> <li>• Chapter 4</li> <li>• <b>No instruction</b> (Non-instructional Day, NOV 21)</li> <li>• <b>No instruction</b> (Thanksgiving Day, NOV 22)</li> </ul>
NOV 26	<ul style="list-style-type: none"> <li>• HW 13 due (Midnight Monday)</li> <li>• 12.1, 12.2</li> <li>• Complete project</li> </ul>
DEC 3	<ul style="list-style-type: none"> <li>• HW 14 due (Midnight Monday)</li> <li>• Review</li> <li>• Last day of instruction (DEC 6)</li> </ul>
DEC 10	<b>FINAL EXAM (Comprehensive; proctored; must be taken on 12/10, 12/11, or 12/12)</b>



**Important College Deadlines**

Last Day for 100% Refund, Fall	Aug 28, 2018
Last Day for 50% Refund, Fall	Sep 11, 2018
Last Day to Withdraw without a "W" Grade, Fall	Sep 11, 2018
Last Day to Withdraw with a "W" Grade, Fall	Oct 29, 2018
Last Day to Establish credit/no-credit and audit options, Fall	Oct 29, 2018