**ECONOMICS 321: INTRODUCTION TO STATISTICS**

**Time and Place:**
- Tuesdays and Thursdays, 3:00-4:15pm, BUSAD (Business Administration) A102

**Professor Karacaovali’s Contact Information and Office Hours:**
- **Office:** Saunders Hall 531  
  **Phone:** 808-956-7296  
  **E-mail:** baybars@hawaii.edu
- **Office Hours:** Tuesdays and Thursdays 10:30-11:30am and by appointment.

**Teaching Assistant Josephine Ofori Adofo’s Contact Information and Office Hours:**
- **Office:** Saunders Hall, Room # TBA  
  **E-mail:** joa94@hawaii.edu
- **Office Hours:** Mondays and Wednesdays, 11:00am-12:00pm and by appointment.

**Course Objectives:**
In this course we aim to study basic statistics with a specific emphasis on problem identification and problem solving. The main topics include descriptive statistics, probability, discrete and continuous probability distributions, sampling and sampling distributions, confidence intervals, hypothesis testing, and basic regression analysis.

In this course you will get a chance to improve your quantitative and analytical skills as well as obtain a solid background for advanced courses. More importantly, you will have a more informed understanding of statistics in your everyday lives and future careers.

**Prerequisites:** None

**Student Learning Outcomes:**
- Develop basic competency in statistical methods and terminology
- Improve quantitative and analytical skills
- Gain proficiency in problem identification and problem solving
- Develop and improve empirical analysis skills through hands-on exercises using Microsoft Excel
- Gain a solid background in basic statistics to use and apply in advanced courses and research
- Have a more informed understanding of statistics in everyday lives and future careers

**Required Equipment: i>clicker**
i>clickers are required (while a textbook is not) for this class. Make sure that you obtain your i>clicker by the second day of classes. You may purchase one at the Manoa Bookstore. You may use your already existing i>clicker if you have one but if you are buying new, please get an i>clicker 2.

Next, make sure to register your i>clicker on Laulima: https://laulima.hawaii.edu/iclicker/ in order to earn credit for attendance and participation!
**Recommended Textbook:**

You do not have to buy the textbook. If you buy it, you don’t need the latest (4th) edition. 3rd edition is perfectly fine, especially if you want to save money. Order it online right away and choose expedited shipping.


Note that, the textbook is not a substitute for the lecture notes and the lectures go beyond the coverage of the book so, as I will repeat below, your attendance and taking notes during lectures are absolutely crucial for your success in this course.

**Handouts:**

You will be provided detailed handouts to use during lectures. You will take notes directly on the handouts for your convenience. I will provide Handout 1 on the first day but you need to print the rest of the handouts from Laulima and bring the relevant ones to every class. You may find it useful to obtain a binder to keep the materials for the class organized.

**Online (Laulima) Problem Sets and Additional Practice Problems:**

Practice is the key for understanding Statistics. You will be assigned approximately eleven online (Laulima) problem sets referring to each of the topics we cover. These will give you an important opportunity to test yourselves and more effectively prepare for the exams. Attacking these problems is a vital part of the learning and preparation process so to encourage you, I will offer full credit (100 points) for scoring 70% or better on each problem set. (Similarly you will get a 90 if you score 63%, a 50 if you score 35% etc.) Bottom line: You should never leave the answer to a question blank even though you may not be sure about the answer.

It is imperative to complete your online problem sets on Laulima by the announced deadlines. Late problem sets will not be accepted under any circumstances. Yet, two problem sets with the lowest grades will be dropped. The weight of the problem sets is 20% of the final grade.

You will also be provided twelve practice problem sets. The practice problems will not be graded but the exams will inevitably borrow from the problem sets as well. Selected problems will be solved in class before the exams and detailed solutions will be posted online.

**Computer Assignments:**

For personal development and as a supplement, you will be assigned around 6 computer exercises that must be completed by using Microsoft Excel. I will give detailed instructions for Excel in case you are not familiar with it so you will get a chance to learn by doing. If you turn in a computer assignment up to 1 lecture late, you will get 3 points below the lowest grade for that computer assignment in your class and zero credit beyond 1 lecture. In order to encourage their completion, you will be awarded 5% bonus credit on top of the final grade. The graded computer assignments will be returned back in class by the teaching assistant (TA) before lectures and during TA’s office hours.
Attendance and Participation:
Attendance is very important for understanding the material truly and for your success in Statistics. Furthermore, despite the large class size I would like to facilitate participation and get instant feedback. Therefore, we will have several in-class exercises and you will get a chance to work on these exercises in small groups. I will rely on i>clickers to keep track of participation and attendance. I will allocate 28% of your grade to participation and both correct and incorrect answers will get full credit. You need to respond to a minimum of 75% of the questions posed in a given lecture (either correctly or incorrectly) to get credit. You are allowed up to four unexcused absences to be eligible for perfect attendance/participation grade. If you forget to bring your i>clicker, see me after class. As long as this is a rare occurrence, you may still get credit for attendance that day.

Exception to the rule: For the rare student whose attendance/participation grade is lower than her average grade from exams, the weight of the attendance/participation grade will be only 4%. In that case, the weight of the exams will be readjusted as indicated in the grading summary table on the next page.

Exams and Grading:
There will be 4 midterm exams during the semester and one final exam (all in multiple-choice format). Most questions will be somewhat similar to the in-class exercises, the problem set questions, and the sample exams. Relevant formulas/definitions will be included in the exams which will also be available on Laulima beforehand. Check them out while solving problem sets so you will be familiar with using them during the exams.

For your convenience, the midterm exam with the lowest grade will be dropped. The weight of each midterm is 12% (hence 36% overall counting the three highest exams). The final exam is worth 16% and it is mandatory to take it. The final exam grade cannot be dropped.

Make-up Policy:
There will be no make-ups for the exams but the exam that you have to miss will be waived if you have a university approved legal excuse: illness supported by an official note from your physician, religious holidays, and participation in university activities at the request of the university authorities. You are obliged to inform me and the TA immediately after an exam should you miss it (even if you may not have the documentation yet). Otherwise, your exam grade will irreversibly be a zero.

The same documentation is required to be excused from attendance. (Remember you are allowed up to five unexcused absences for your attendance/participation grade.) In the case of computer assignments, you need to contact the TA to make alternative arrangements to submit your assignments on time if you have a university approved excuse to miss a class.

Grading Summary:

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<th>Regular</th>
<th>If attendance grade &lt; average exam grade</th>
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<tbody>
<tr>
<td>1. Attendance &amp; Participation</td>
<td>28%</td>
<td>4%</td>
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<td>2. Problem Sets</td>
<td>20%</td>
<td>20%</td>
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<td>3. Midterm Exams</td>
<td>36%</td>
<td>52%</td>
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<td>4. Final Exam</td>
<td>16%</td>
<td>24%</td>
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<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
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<tr>
<td>Computer Assignments (+Bonus)</td>
<td>5%</td>
<td>5%</td>
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Course Materials Online: Laulima
Here is a list of the things that you can find on https://laulima.hawaii.edu/portal:

- A copy of the most up-to-date syllabus
- Important announcements
- Handouts on the material covered or to be covered in class (please print these and bring to class!) 
- Lecture slides (after each topic is completed)
- Practice problem sets and solutions
- Formula sheets
- Statistical tables
- Computer assignments, related Excel files, and solutions
- Laulima problem sets
- Raw grades for assignments and exams (letter grades will be determined at the end of the semester)

Thus, you should regularly check Laulima!

Calculators:
It would be useful to have a basic scientific/statistical calculator for this class. It doesn’t have to be anything fancy. For example, you can get a Texas Instruments TI-30X IIS 2-Line Scientific Calculator for about $13 online if you don’t already own one. However, it would be nice if the calculator can perform tasks such as

1. compute combinations of \( n \) things taken \( x \) at a time, i.e. \( C(n,x) \) or \( nCx \);
2. compute permutations, i.e. \( P(n,x) \) or \( nPx \);
3. have 7 or 8 digits of display after the decimal.

Make sure that you keep the manual and make a copy of it for backup (or download a pdf manual online for reference). You should bring your calculator to every class and to certainly all the exams and quizzes. You will not be permitted to exchange calculators during exams. Cell phones, pdas, tablets etc. will not be allowed during exams as well.

Office Hours:
You are encouraged to utilize my office time. Please do not hesitate to see me for any questions you have in the posted hours or by arranging an appointment with me if these hours do not work for you. Remember I am here to help when you need it! Additionally, you may meet Josephine (TA) at her office hours.

Disability Services:
Any student who feels s/he may need an accommodation based on the impact of a disability is invited to contact me privately. I would be happy to work with you, and the KOKUA Program (Office for Students with Disabilities) to ensure reasonable accommodations in my course. KOKUA can be reached at (808) 956-7511 or (808) 956-7612 (voice/text) in room 013 of the Queen Lili‘uokalani Center for Student Services.

Academic Dishonesty:
I have absolutely zero tolerance against any sort of cheating, plagiarism, and academic dishonesty. I value fairness to all students and will seek the harshest disciplinary action in case the trust is broken.
LIST OF TOPICS AND APPROXIMATE EXAM DATES

Related chapters in Sullivan (4th edition) for the topics we will cover in class are indicated in parentheses. The exam dates are tentative and are subject to change as we progress through the semester. You will have at least a week’s notice before an exam.

- **Topic 1:** Introduction (Chapter 1)
- **Topic 2:** Graphical Description of Data (Chapter 2 and partially Chapters 3 and 4)
- **Topic 3:** Statistical Description of Data (Chapter 3)

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<tr>
<th>MIDTERM EXAM 1: Thursday, 9/10, 3:00-4:15pm (Topics 1, 2, and 3)</th>
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- **Topic 4:** Probability (Chapter 5)

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<th>MIDTERM EXAM 2: Tuesday, 9/29, 3:00-4:15pm (Topic 4)</th>
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- **Topic 5:** Discrete Probability Distributions (Chapter 6)
- **Topic 6:** Continuous Probability Distributions (Chapter 7)

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<th>MIDTERM EXAM 3: Tuesday, 10/20, 3:00-4:15pm (Topics 5 and 6)</th>
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- **Topic 7:** Sampling (Chapter 1)
- **Topic 8:** Sampling Distributions (Chapter 8)
- **Topic 9:** Confidence Intervals (Chapter 9)

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<th>MIDTERM EXAM 4: Thursday, 11/12, 3:00-4:15pm (Topics 7, 8, and 9)</th>
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- **Topic 10:** Hypothesis Testing I (Chapter 10)
- **Topic 11:** Hypothesis Testing II (Chapter 11)
- **Topic 12:** Basic Regression Analysis (Chapter 4 and partially Chapter 12)

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<th>FINAL EXAM: Tuesday, 12/15, 2:15-4:15pm (Topics 10, 11, and 12)</th>
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**Note:** Each student has a different taste for the pace of lectures given diverse backgrounds. What is slow for you might be too fast for others or vice versa. Please keep this in mind and do not hesitate to let me know how you feel.