

University of Hawaii Maui College
MATH 115 - Introduction to Statistics and Probability/ Intro to Stats and Prob
(*BANNER system agreement)**

Course Alpha. Please click on the ? to the right for help.

MATH

2. Course Number. Please click on the ? to the right for help.

115

3. Course Title/Catalog Title. Please click on the ? to the right for help.

Introduction to Statistics and Probability/ Intro to Stats and Prob (**BANNER system agreement)

4. Number of Credits. Please click on the ? to the right for help.

3

5. Contact Hours/Type. Please click on the ? to the right for help.

- Hour lecture (3)

6. Course Description. Please click on the ? to the right for help.

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.

7. Pre-Requisites. Please click on the ? to the right for help.

MATH 82 with grade C or better, or placement at MATH 100 or higher; and ENG 100 with grade C or better (or concurrent); or consent.

8. Co-requisites.

None

9. Recommended Preparation.

None

10. Is this a cross-listed course? Please click on the ? to the right for help.

NO

11. Reason for Proposal. Why is this course being proposed or modified? This question requires specific information as part of the explanation. Please click on the ? to the right for help.

Revise course to comply with UH system changes initiated at Faculty Discipline Meeting (May 13, 2013) to standardize Course title, Banner title, Prerequisites and Course Description. This modification also makes updates for 5 year review.

12. Effective Semester and Year. For new or modified courses, the effective year is one year from the semester proposed. For example, if proposed in Spring 2012, the effective semester is Spring 2013. Please click on the ? to the right for help.

Fall 2014

13. Grading Method. What grading methods may be used for this course? Please click on the ? to the right for help.

- Standard (Letter,Cr/NCr,Audit) (0)

14. Is this course repeatable for credit? How often can this course be counted toward a degree or certificate? Please click on the ? to the right for help.

NO

15. Course Student Learning Outcomes (SLOs). DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE LEARNING OUTCOMES" and enter in that screen. Please click on the ? to the right for help.

Course SLO/Competency	Define, calculate, and interpret various descriptive and inferential statistical processes.	Solve normal distribution application problems.	Create a linear regression model from data points, interpret the correlation coefficient, and use the model to make predications.	Define, calculate, and interpret various probability concepts and application problems.	Apply and interpret appropriate concepts such as random sampling and confidence intervals in statistical analysis.	Discuss and interpret statistical inference, confidence intervals, hypothesis testing, z test, research and null hypothesis, sample statistics, and population	Explain the concepts of statistical confidence, power, and the impact of type I and type II errors.	Differentiate between the concepts of levels of confidence, interval estimate, confidence interval, and significance level.	Conduct a single sample, independent samples, and correlated/dependent pair t-tests.	Calculate a confidence interval for the proportion of a population, the mean of a population, matched paired data, and the difference between
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						parameters.				two means.
Choose appropriate symbolic mathematical techniques and employ them to solve and interpret statistical application.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrate effective use of technology in solving such problems.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Communicate the solution of such problems using Standard English and numeric, graphic, or symbolic representation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Course SLO
Choose appropriate symbolic mathematical techniques and employ them to solve and interpret statistical application.
Demonstrate effective use of technology in solving such problems.
Communicate the solution of such problems using Standard English and numeric, graphic, or symbolic representation.

16. Course Competencies. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE COMPETENCIES/ISSUES/SKILLS" and enter text in that screen. Course competencies are smaller, simpler tasks that connect to and facilitate the SLOs.

Competency
Define, calculate, and interpret various descriptive and inferential statistical processes.
Solve normal distribution application problems.
Create a linear regression model equation from data points, interpret the correlation coefficient, and use the model to make predications.
Define, calculate, and interpret various probability concepts and application problems.
Apply and interpret appropriate concepts such as random sampling and confidence intervals in statistical analysis.
Discuss and interpret statistical inference, confidence intervals, hypothesis testing, z test, research and null hypothesis, sample statistics, and population parameters.
Explain the concepts of statistical confidence, power, and the impact of type I and type II errors.
Differentiate between the concepts of levels of confidence, interval estimate, confidence interval, and significance level.
Conduct a single sample, independent samples, and correlated/dependent pair t-tests.
Calculate a confidence interval for the proportion of a population, the mean of a population, matched paired data, and the difference between two means.

17. Recommended Course Content and Timeline. The course content facilitates the course competencies. Course content may be organized by weeks, units, topics or the like.

Content
Weeks 1-5: Descriptive statistics Weeks 6 - 10: Elementary probability Weeks 11-16: Inferential statistics

18. Program Learning Outcomes. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "PLOs" and enter text in that screen. Program Student Learning Outcomes (PLOs) supported by this course. If you are not a "program" use the Liberal Arts PLOs, view them by clicking on ? icon to the right.

Foundations

19. College-wide Academic Student Learning Outcomes (CASLOs). FIRST, fill out the CASLO grid located in the UHMC tab above. Click on the HELP icon for tips on determining support for the CASLOs and indicate your choices below by clicking on the box in front of each supported CASLO. NOTE: Our campus does not use the Preparatory Level, Level 1 and Level 2 designations in the chart below.

Creativity - Able to express originality through a variety of forms.

<input checked="" type="checkbox"/>	Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems. <input checked="" type="checkbox"/> Preparatory Level
	Information Retrieval and Technology - Access, evaluate, and utilize information effectively, ethically, and responsibly.
	Oral Communication - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
<input checked="" type="checkbox"/>	Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately. <input checked="" type="checkbox"/> Preparatory Level
	Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes.

GenED SLO
Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems.
Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately.

20. **Linking.** CLICK ON CHAIN LINK ICON IN UPPER RIGHT HAND CORNER TO BEGIN LINKING. Please click on the ? to the right for help.

21. **Method(s) of delivery appropriate for this course.** Please click on the ? to the right for help.

- Cable TV (0)
- Classroom/Lab (0)
- HITS/Interactive TV (0)
- Hybrid (0)
- Online (0)

22. **Text and Materials, Reference Materials, and Auxiliary Materials.** Please click on the ? to the right for help.

Texts such as:

Larson, R. and Farber, B. (2011 Elementary Statistics, 5th Edition Pearson Publishing

23. **Maximum enrollment.** Please click on the ? to the right for help.

35

24. **Particular room type requirement.** Is this course restricted to particular room type? Please click on the ? to the right for help.

NO

25. **Special scheduling considerations.** Are there special scheduling considerations for this course? Please click on the ? to the right for help.

NO

26. **Are special or additional resources needed for this course?** Please click on the ? to the right for help.

No

27. **Does this course require special fees to be paid for by students?** Please click on the ? to the right for help.

NO

28. **Does this course change the number of required credit hours in a degree or certificate?** Please click on the ? to the right for help.

No

29. **Course designation(s) for the Liberal Arts A.A. degree and/or for the college's other associate degrees.** Please click on the ? to the right for help.

Degree	Program	Category
Associate in Arts:	Liberal Arts	FS - Symbolic Reasoning
		LE - Elective
AS:	ANY	QR - Quantitative Reasoning

AAS:	ANY	QR - Quantitative Reasoning
BAS:	ABIT	QR - Quantitative Reasoning
Developmental/ Remedial:	N/A	

30. Course designation(s) for other colleges in the UH system.

FS in UH System

31. Indicate the year and page # of UHMC catalog referred to. For new or modified courses, please indicate the catalog pages that need to be modified and provide a sheet outlining those changes.

2013-2014; Page 131

32. College-wide Academic Student Learner Outcomes (CASLOs). Please click on the HELP icon for more information.

Standard 1 - Written Communication Write effectively to convey ideas that meet the needs of specific audiences and purposes.		
Outcome 1.1 - Use writing to discover and articulate ideas.		1
Outcome 1.2 - Identify and analyze the audience and purpose for any intended communication.		1
Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.		1
Outcome 1.4 - Gather information and document sources appropriately.		1
Outcome 1.5 - Express a main idea as a thesis, hypothesis, or other appropriate statement.		2
Outcome 1.6 - Develop a main idea clearly and concisely with appropriate content.		1
Outcome 1.7 - Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.		0
Outcome 1.8 - Demonstrate proficiency in revision and editing.		0
Outcome 1.9 - Develop a personal voice in written communication.		0
Standard 2 - Quantitative Reasoning Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately.		
Outcome 2.1 - Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.		3
Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.		3
Outcome 2.3 - Communicate clearly and concisely the methods and results of quantitative problem solving.		2
Outcome 2.4 - Formulate and test hypotheses using numerical experimentation.		3
Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.		2
Outcome 2.6 - Assess the validity of statistical conclusions.		3
Standard 3 - Information Retrieval and Technology. Access, evaluate, and utilize information effectively, ethically, and responsibly.		
Outcome 3.1 - Use print and electronic information technology ethically and responsibly.		1
Outcome 3.2 - Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.		0
Outcome 3.3 - Recognize, identify, and define an information need.		0
Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.		1
Outcome 3.5 - Create, manage, organize, and communicate information through electronic media.		1
Outcome 3.6 - Recognize changing technologies and make informed choices about their appropriateness and use.		0

Standard 4 - Oral Communication Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.		
Outcome 4.1 - Identify and analyze the audience and purpose of any intended communication.		0
Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.		1
Outcome 4.3 - Use language, techniques, and strategies appropriate to the audience and occasion.		0
Outcome 4.4 - Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.		0
Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.		1
Outcome 4.6 - Use competent oral expression to initiate and sustain discussions.		1
Standard 5 - Critical Thinking Apply critical thinking skills to effectively address the challenges and solve problems.		
Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information.		3
Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.		2
Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.		3
Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.		3
Outcome 5.5 - Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases through the use of appropriate evidence.		2
Outcome 5.6 - Apply problem-solving techniques and skills, including the rules of logic and logical sequence.		1
Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.		2
Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning.		1
Outcome 5.9 - Reflect upon and evaluate their thought processes, value system, and world views in comparison to those of others.		1
Standard 6 - Creativity Able to express originality through a variety of forms.		
Outcome 6.1: Generate responses to problems and challenges through intuition and non-linear thinking.		1
Outcome 6.2: Explore diverse approaches to solving a problem or addressing a challenge.		2
Outcome 6.3: Sustain engagement in activities without a preconceived purpose.		0
Outcome 6.4: Apply creative principles to discover and express new ideas.		0
Outcome 6.5: Demonstrate the ability to trust and follow one's instincts in the absence of external direction		1
Outcome 6.6: Build upon or adapt the ideas of others to create novel expressions or new solutions.		1

33. Additional Information

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