

Stat 145

1. **Descriptive Statistics, Data Production and Inference:** Students will learn basic vocabulary, logic, and procedures for data exploration, data production, and statistical inference.
(Addresses UNM/ HED Area II: Mathematics Other College-Level Competency 1)
2. **Data Exploration:** Students will understand principles of data exploration and differentiate between quantitative and categorical variables. Students will illustrate by way of graphs and the use of tables how to interpret data. They will identify the underlying principles and measures used to analyze this data.
(Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1 & 2)
3. **Procedures for data production:** Students will demonstrate that they can use tables of random numbers to perform simple random sampling to obtain samples from populations. They will show that they can distinguish differences between observational studies and experiments. Students will demonstrate techniques for the design of a controlled experiment.
(Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 2 & 3)
4. **Probability theory:** Students will be able to use the basic rules for probability to solve problems, working with simple models, both discrete and continuous. Students will demonstrate an understanding of probabilities related to random variables.
(Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2 & 3)
5. **Sampling Distributions:** Students will be able to recognize and apply the terms population, sample, parameter and statistics as they pertain to sampling distributions. They will apply the concept of the Law of Large Numbers and Central Limit Theorem. They will demonstrate the ability to obtain the sampling distribution of sample means and spread of a population.
(Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2 & 3)
6. **Making Inferences:** Students will demonstrate an understanding for the procedures involved in making inferences about quantitative populations.
(Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2 & 3)
7. **Tests for Independence of two categorical variables:** Students will be able to interpret 2-way tables, stating hypothesis, calculating expected counts and using Chi Square distribution to test for independence.
(Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2 & 3)