5.e Statistics

**Description**: Statistics is the science of learning from data. It is the scientific study of how to collect, analyze, interpret, and present data in the presence of uncertainty and variation. Statisticians perform a variety of duties depending on their position. These duties include deciding what data are needed; determining the best method for collecting the data; designing the surveys or experiments to collect the data; gathering the data; analyzing and interpreting data; and reporting the conclusions. Statisticians work in numerous fields such as sports, medicine, business and education, or any field requiring collection and analysis of data. Professional or college sports teams use statistics to determine the most beneficial draft picks or athletes to recruit. Medical researchers need statistics to understand the prevalence of disease among various populations. Data scientists contribute to advancements in the computing industry through machine learning, speech recognition and artificial intelligence. Ecologists conduct analyses that lead to better management of the earth’s natural resources. Statisticians improve efficiency in business and help banks to identify risk and opportunity. Politicians use statistics to improve voter targeting, and the government uses statistics to assess the success of policies and programs.

Statisticians are ranked #1 in best STEM jobs and #17 in 100 best jobs from US news. Statistical analysis and data mining were listed among the “hottest skills of 2014”. As the growth of big data, the use of statistical analysis has widely spread in business, health care, and policy decisions. Jobs for statisticians have become one of the fastest growing fields. Employment of statisticians is projected to grow 34 percent from 2014 to 2024, much faster than the average for all occupations according to the Bureau of Labor Statistics.

**Job Market and Salary Information**: Many jobs for statisticians require a master’s degree or Ph.D., but a bachelor’s degree is sufficient for some. The median annual wage for statisticians was $80,500 in 2016, and this field is expected to grow much faster than average (34%) over the next ten years. A degree in statistics is especially attractive to employers when combined with a minor or second major in a STEM field or business.

**Resource Faculty**: Dasgupta, Evans, Jandhyala, Johnson, Pascual, and Y. Wang.