

## Statistics

*Prerequisites: All statistics courses have prereqs. Thus, to be eligible to enroll in a statistics course, a student must have received a grade of C- or higher in the HSU courses listed as prereqs. In some lower division courses, a student may also satisfy the prereqs with an appropriate score on a mathematics placement exam.*

*Statistics courses are also under other departmental prefixes. See BA 332, or PSYC 241, 478, 588.*

### LOWER DIVISION

**STAT 106. Introduction to Statistics for the Health Sciences** (3) **FS**. Descriptive methods, elementary probability, binomial and normal distributions, confidence intervals, test of hypothesis, regression, ANOVA; computer methods using Minitab. [Prereq: math remediation completed or not required. Weekly: 2 hrs lect, 2 hrs lab. GE.]

**STAT 108. Elementary Statistics** (4) **FS**. Probability, relative frequency; measure of central tendency, variation, correlation; binomial and normal distributions; testing of hypotheses and estimation; linear regression. [Prereq: math remediation completed or not required. Weekly: 3 hrs lect, 2 hrs activ. GE.]

**STAT 109. Introductory Biostatistics** (4). Descriptive statistics, probability, random variables, discrete and continuous distributions, confidence intervals, contingency tests, regression and correlation, tests of hypothesis, analysis of variance. Emphasis: methods and applications used in the biological and natural resource sciences. [Prereq: MATH 113 or MATH 115 (may be concurrent with IA) or equivalent, or IA. Weekly: 3 hrs lect, 2 hrs activ. GE.]

**STAT 280. Selected Topics in Statistics** (1-3). Topics accessible to lower division students. [Prereq: IA. Lect/lab as appropriate. Rep.]

### UPPER DIVISION

**STAT 323. Probability & Statistics** (4) **F**. Probability axioms; probability distributions of discrete/continuous random variables; concepts of marginal and conditional probability. Mathematical expectation; moments and generating functions. Data analysis. Emphasis: mathematical theory. [Prereq: MATH 205 or MATH 210, and MATH 241 (C). Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 333. Linear Regression Models/ANOVA** (4). Linear regression, analysis of variance, and other linear models applied to experimental and observational studies. Course emphasizes model formulation, assumptions, selection, and interpretation in both hypothesis-testing and descriptive contexts. [Prereq: MATH 113 or MATH 115 or equivalent, and STAT 108 or STAT 109. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 404. Multivariate Statistics** (4). Explore and model multivariate systems. Matrix algebra, correlation matrices, principal components, common factors, canonical correlation. Use and interpret computer-assisted analysis. [Prereq: STAT 108 or STAT 109. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 406. Sampling Design & Analysis** (4) **F**. Randomized sample surveys are used for natural resource monitoring, election polling, plant abundance estimation, and other purposes. This course presents approaches to sample selection and to inference/estimation from sample data. [Prereq: STAT 109 or equivalent. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 409. Experimental Design & Analysis** (4). Analysis of variance and nonparametric alternatives. Designs: nested, randomized complete block, factorial, and fractional factorial. Covariance designs. [Prereq: STAT 108 or STAT 109 or equivalent. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 410. Modern Statistical Modeling** (4). Contemporary methods in statistics that provide tools for analyzing complex datasets: generalized linear modeling, model selection strategies, Bayesian statistical analysis and inference, mixed-effects modeling, and ARIMA time series analysis. [Prereq: STAT 108 or STAT 109. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 480. Selected Topics in Statistics** (1-3). [Prereq: IA. Lect/lab as appropriate. Rep.]

**STAT 499. Directed Study** (.5-3). Directed reading and conferences on special topics. [Prereq: IA. Rep.]

### GRADUATE

**STAT 504. Multivariate Statistics** (4). Meets jointly with STAT 404. Students in STAT 504 are expected to carry out an additional project and report findings. [Prereq: STAT 109 or equivalent; matrix algebra highly recommended. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 506. Sampling Design & Analysis** (4) **F**. Meets jointly with STAT 406. Students in STAT 506 expected to carry out additional independent sampling project and report findings in class. [Prereq: STAT 109 or equivalent. Weekly: 3 hrs lect, 2 hrs lab.]

**STAT 509. Experimental Design & Analysis** (4). Meets jointly with STAT 409. Students in STAT 509 are expected to carry out an additional project and report findings. [Prereq: STAT 109. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 510. Modern Statistical Modeling** (4). Meets jointly with STAT 410. Students in STAT 510 are expected to carry out an additional project and report findings. [Prereq: STAT 109 or STAT 108. Weekly: 3 hrs lect, 2 hrs activ.]

**STAT 580. Selected Topics in Statistics** (1-3). [Prereq: IA. Lect/lab as appropriate. Rep.]

**STAT 630. Data Collection & Analysis** (4). Practicum in data collection and analysis. Design and implement data collection and analysis. [Rec: probability and statistics, programming experience, grad standing. Weekly: 3 hrs lect, 3 hrs lab.]

**STAT 699. Independent Study** (.5-3). Directed reading and conferences in special topics. [Prereq: IA. Rep.]