

# LAND SURVEYING (SURV)

## Courses

### **SURV 100 Introduction to Surveying/Field Work 3 Credits**

Introduction to the common surveying units, the theory of significant figures, the basic theory of errors, and the use of surveying field notes. Topics also include the instrumentation and methodologies of measuring the common surveying units, such as differences in elevation, distances, angles, bearings, and azimuths.

**Prerequisites:** MATH 113 or higher.

**Corequisites:** SURV 102.

**Terms Typically Offered:** Fall, Spring, Summer.

**Fees:** Yes.

### **SURV 102 Surveying Calculations I 4 Credits**

Fundamental mathematical calculations and theories associated with measuring techniques taught in SURV 100 in order to calculate the horizontal and vertical relationship between points, lines, and areas based on plane geometry.

**Prerequisites:** MATH 113 or higher.

**Corequisites:** SURV 100.

**Terms Typically Offered:** Fall, Spring.

### **SURV 195 Independent Study 1-3 Credits**

Course may be taken multiple times up to maximum of 6 credit hours.

### **SURV 200 Advanced Surveying Field Work 3 Credits**

Use of total station and robotic equipment, global positioning system (GPS) equipment, methods of construction staking, overall concepts of GPS, mapping surveys, mapping in general, photogrammetry, and an introduction to GIS.

**Prerequisites:** SURV 100 and SURV 102.

**Corequisites:** SURV 205.

**Terms Typically Offered:** Fall, Spring, Summer.

### **SURV 203 Legal Aspects of Surveying 3 Credits**

Introduction to the concepts of boundary control and legal principles. Topics include rights in land, Public Land System of Surveys, metes and bounds surveys, proportionate measurement, junior/senior title rights, retracement of original surveys, deed first/survey first, common and case law, ranking/prioritizing evidence, controlling monuments and corners, errors in legal descriptions and plats, record research, and case studies.

**Corequisites:** SURV 204.

**Terms Typically Offered:** Fall, Spring.

### **SURV 204 Real Property Descriptions 2 Credits**

Reading, writing, and interpreting property descriptions to be consistent with boundary law principles. Several areas of boundary law are reviewed, with an emphasis on the written legal documents that describe those properties.

**Corequisites:** SURV 203.

**Terms Typically Offered:** Fall, Spring.

### **SURV 205 Advanced Surveying Computations/Calculations 4 Credits**

Review of horizontal curve concepts and calculations followed by advanced skills development. Topics include vertical curve calculations, volume calculations, an introduction to the concepts of least squares adjustments, an overview of astronomical observations, an introduction of control surveys and geodetic reductions, and an introduction of state plane coordinates and other map projections.

**Prerequisites:** SURV 100 and SURV 102.

**Corequisites:** SURV 200.

**Terms Typically Offered:** Fall, Spring.

### **SURV 206 Property Law - Boundary Evidence 3 Credits**

Select topics of evidence and procedures for boundary location. Presents an introduction to the Public Land Survey System (Rectangular Survey System) of surveys used in the United States. Reviews Colorado Revised Statutes related to surveying and the Architects, Engineers, and Surveyor's Board Rules (AES Board Rules).

**Prerequisites:** SURV 203 and SURV 204.

**Terms Typically Offered:** Fall, Spring.

### **SURV 207 Surveying Ethics: An Overview of Ethical Expectations 2 Credits**

Overview of the ethical standards of the Professional Land Surveyor and insight into the numerous ethical choices faced by the Professional Land Surveyor.

**Terms Typically Offered:** Fall, Spring, Summer.

### **SURV 298 Internship/Capstone Project 4 Credits**

Demonstration of proficiency in the required surveying-specific knowledge to pass the Colorado exams through an internship and delivery of a capstone project on a mutually agreed upon topic.

**Prerequisites:** SURV 100, SURV 102, SURV 200, SURV 203, SURV 204, SURV 205, SURV 206, SURV 207, STAT 200, MATH 130, and one of the following: MATH 141, MATH 121, MATH 131, MATH 135, or MATH 151.

**Terms Typically Offered:** Fall, Spring, Summer.