



MGA COURSE CATALOG

SUR 201 | Surveying I

Credit: 3 semester hours

Focus on fundamental surveying principles, mathematics, and equipment operations, with emphasis on computations up to and including traverses, coordinates and area computations, and using instruments such as the surveyor's tape, level, and total station. The laboratory component includes hands-on exercises for basic instrument use and elementary surveying operations in the field.

Prerequisite: College Algebra, Geometry and Trigonometry OR Pre-calculus with a grade of "C" or higher. Students may have to pass a Skills for Surveying Fundamentals math assessment test. Failure to pass this test will require an Introduction to Surveying Mathematics course with grade of "C" or better first.

Objectives

1. Apply basic surveying principles.
2. Evaluate site survey requirements.
3. Plan, conduct, and document diverse survey measurements.
4. Calculate corrections and adjustments to initial measurement data including traverses.
5. Use various surveying instruments and related equipment.

SUR 202 | Surveying II

Credit: 3 semester hours

Focus on theory and practice, including mathematics, of advanced traverse computations including inverting and various combinations of distance and direction intersections including perpendicular offsets. Additional topics that are introduced include concepts in route surveying; elementary concepts of property boundary surveying, topographic mapping, and volume calculations; and construction surveying. Concepts and applications of Geographic Information Systems (GIS) and Global Navigation Satellite Systems (GNSS) are also introduced. This course has a laboratory component where the student builds on the instrument use and surveying operations learned in Surveying I.

Prerequisite: SUR 201 (Surveying I) with "C" or better.

6. Perform advance traverse computations including areas and distance and direction intersections.
7. Execute essential survey operations for topographic, highway, and railroad fieldwork safely.
8. Employ total stations across various surveying techniques.
9. Explain accuracy standards and to be able to make necessary adjustments to the observed data.
10. Grasp fundamentals of GIS, GPS, and State Plane Coordinate System concepts.

SUR 301 | Land Records: Researching & Using

Credit: 3 semester hours

Essential skills for conducting land records research in preparation for property boundary surveys is the focus. Students will learn to examine deeds, survey records, and related documents to gather evidence of ownership, historical information, and legal requirements. The curriculum covers the application of records research in accordance with Missouri (and other state) Standards for Property Boundary Surveys, as well as ALTA/NSPS specifications for land title surveys.

Prerequisite: SUR 202 (Surveying II) with "C" or better.

Objectives

11. Analyze discrepancies between recorded information and other discovered evidence including field evidence.
12. Correlate technical, legal, and administrative facts.
13. Evaluate the reliability of all discovered evidence.
14. Apply prescribed standards and historical values.
15. Formulate a reasoned conclusion regarding the title boundary locations of real property.

SUR 302 | Legal Aspects of Boundary Surveying

Credit: 3 semester hours

This course teaches the legal principles of property boundary surveying including topics in boundaries, property law as applied to surveying, monumentation, deed interpretation, and professional liability and ethics. Also discussed are various principles of Missouri survey law, regulations such as the Missouri (and other state) Standards for Property Boundary Surveys, and the applicable portions of the standards for land

title surveys of the American Land Title Association (ALTA)/National Society of Professional Surveyors (NSPS). Various aspects of professional practice and ethics are also included.

Prerequisite: SUR 302 (Land Records: Researching and Using) with "C" or better.

Objectives

16. Recognize ownership, transfer, and real property descriptions.
17. Identify various easements and reversions.
18. Assess boundary evidence effectively.
19. Understand the influence of GPS and GIS on boundary law.
20. Demonstrate effective communication techniques with clients, the public, and fellow surveyors.

SUR 303 | Elements of Surveying Practice

Credit: 3 semester hours

This course delves into the legal dimensions of surveying practice, with a primary focus on Missouri-specific requirements and statutes. Topics encompass land description comprehension, interpretive skills, and effective descriptive writing. It reviews and builds expertise in the Missouri Standards for Property Boundary and other standards promulgated for land surveyors. Emphasis is placed on practical exercises, including the review and the creation of

plats from provided data. Additionally, the course equips participants with a comprehensive understanding of statutes, regulations, and rules pertinent to surveying practice. This includes navigating the application process for obtaining and maintaining a professional license. Relevant examples of documentation and figures, maps and plats as well as case studies are used.

Prerequisite: SUR 302 (Legal Aspects of Boundary Surveying) with "C" or better.

Objectives

21. Create land descriptions, including metes and bounds, "of" descriptions, aliquot parts of sections, non-aliquot parts of sectionalized land, and properties with riparian boundaries.
22. Understand the process of drafting clear and unambiguous land descriptions.
23. Analyze the language and structure of description calls, spanning from the caption to the declaration of quantity.
24. Evaluate surveys using provided checklists, ensuring adherence to surveying standards.
25. Construct compliant surveys using observation data and relevant documentation.
26. Apply statutes, rules, and regulations integral to surveying practice for full compliance.
27. Grasp a surveyor's ethical responsibilities to both the public and clients.
28. Explore the process of applying for, obtaining, and sustaining a professional surveying license