

SURVEYING & GEOMATICS (SURV)

Fundamentals	of	Survey	
SURV 102			2 Credits/Units
1.0 hours of lecture / 2.0 hours of lab			
Introduction to concepts of map reading, coordinate systems, the Public Land Survey System, basic legal descriptions of real property, plotting field data and creating a plat, and the minimum requirements for preparing plats in the State of Washington. No field work required. [GE]			
Survey		Computation	
SURV 104			5 Credits/Units
5.0 hours of lecture			
Prerequisite: College Trigonometry (MATH 102 or MATH 103) grade of "C" or higher			
Basic coordinate geometry, curves and solutions, conversions, statistics and error analysis, traverse calculations, inverting, coordinate positions, and area calculations. [GE]			
Field	Survey	I	
SURV 121			5 Credits/Units
3.0 hours of lecture / 4.0 hours of lab			
Prerequisite: MATH 103 (grade of "C" or higher), or eligibility for Math Level 80			
Basic theory of surveying, measurement and calculation. Topics include measurement and determination of boundaries, areas, shapes, and location through traversing techniques, error theory, compass adjustments, public land system, and use of programmable calculators. Also covers principles of measurements of distances, elevation and angles. [GE]			
Field	Survey	II	
SURV 122			5 Credits/Units
3.0 hours of lecture / 4.0 hours of lab			
Prerequisite: SURV 121 (grade of "C" or higher)			
Theories of electronic distance measurement, instrument calibration and analysis; principles of route location and design; theories of circular, parabolic, and spiral curves; highway and railway geometric design; area and volumes of earthwork; and mass diagrams. [GE]			
Professional		Ethics	
SURV 123			1 Credit/Unit
1.0 hours of lecture			
Prerequisite: Concurrent enrollment in, or completion of SURV 121 (grade of "C" or higher)			
Survey safety, ethics, and communication. Problem solving methods, procedures, and human relations related to on-the-job work experience in field surveying. [GE][PNP]			
Introduction	to	GIS	
SURV 125			3 Credits/Units
2.0 hours of lecture / 2.0 hours of lab			
Prerequisite: MATH 92 or PTCS 110 (grade of "C" or higher) or placement into Math level 30			
Introduction to Geographic Information Systems (GIS) methods and theory. Background and development of GIS technology. Introduction to relational and spatial databases and spatial analysis. [GE]			

Route	Surveying	
SURV 163		5 Credits/Units
3.0 hours of lecture / 4.0 hours of lab		
Prerequisite: SURV 122 (grade of "C" or higher)		
Introduction to elements of horizontal and vertical route alignment and layout. Use design software and a total station for the construction of a section of road. Include the construction of a topographic map, a centerline alignment, and a final plan and profile showing centerline alignment. Use of topographic data for earthwork computations for proposed route. [GE]		
Cooperative	Work	Experience
SURV 199		1-5 Credits/Units
15.0 hours of clinical		
Prerequisite: SURV 121 (grade of "C" or higher)		
Work-based learning experience that enables students to apply specialized occupational theory, skills and concepts. Specific objectives are developed by the College and the employer. [GE]		
Boundary	Surveys	
SURV 202		4 Credits/Units
4.0 hours of lecture		
Prerequisite: Concurrent enrollment in, or completion of SURV 121 (grade of "C" or higher)		
Principles and laws relating to boundary surveys, including their creation, ownership, and the role of the surveyor; introduction to the Public Land Survey System, including history, proportioning, subdividing and evidence analysis. Topics include boundary history and boundary surveys, rights in land, junior/senior title rights, retracement of originals surveys, deed first/survey first, common and case law, ranking/prioritizing evidence, controlling monuments and corners, errors in legal descriptions and plats. [GE]		
Legal	Descriptions	
SURV 203		3 Credits/Units
3.0 hours of lecture		
Prerequisite: SURV 121 (grade of "C" or higher)		
Research and practice pertaining to the legal aspects of writing land description documents used in real property; written research project required. [GE]		
Boundary	Law	I
SURV 223		3 Credits/Units
3.0 hours of lecture		
Prerequisite: SURV 121 (grade of "C" or higher)		
Introduction to statute law, common law, case law, and legal principles of land boundaries and the practice of land surveying in Washington. Topics include an introduction to principles of professional practice and ethical consideration. [GE]		
Subdivision	Planning	and
SURV 225		Platting
		3 Credits/Units
3.0 hours of lecture		
Prerequisite: SURV 122 (grade of "C" or higher)		
A study of selected state laws and regulations pertaining to the surveying profession that affect the surveying of division of lands; layout and design of subdivisions; environmental considerations and site analysis procedures. [GE]		
Arc	GIS	I
SURV 250		3 Credits/Units
2.0 hours of lecture / 2.0 hours of lab		
Prerequisite: SURV 125 (grade of "C" or higher)		
Introduction to ArcGIS. GIS concepts, methodologies, and techniques. [GE]		

to

3 Credits/Units

1.0 hours of lecture / 4.0 hours of lab

Prerequisite: SURV 252 (grade of "C" or higher)

Introduction to global positioning tools. Fundamental concepts and use of modern handheld GPS. Includes field work and use of basic GPS software. [GE]

Technology

3 Credits/Units

1.0 hours of lecture / 4.0 hours of lab

Prerequisite: MATH 103 (grade of "C" or higher), or eligibility for Math Level 80

An overview of the technologies used for gathering and management of spatial data and information including but not limited to the following: terrestrial scanning, mobile lidar, aerial imagery and airborne lidar in the use of modern surveying. [GE SE]

Software

4 Credits/Units

3.0 hours of lecture / 2.0 hours of lab

Prerequisite: SURV 121 (grade of "C" or higher)

Use of surveying and related software to solve and plot assignments in traverse calculations, horizontal and vertical curve alignments, profiles, contours, and earthwork calculations. Some hand generated plots and calculations will be made to supplement the computer calculations. [GE]

Topics

1-6 Credits/Units

6.0 hours of lecture

Selected topics in Surveying. Topics vary and course theme and content change to reflect new topics. Because the course varies in content, it is repeatable for credit. Individual topics are listed in the term class schedules. [GE]

Projects

1-5 Credits/Units

5.0 hours of lecture

Opportunity to plan, organize, and complete special projects approved by the department. [GE]