****

**THE MOUNTAINEERS**

**KITSAP BRANCH**

**WILDERNESS NAVIGATION COURSE**

# Introduction

The Mountaineers Wilderness Navigation Course provides an introduction to the orientation and navigation skills you will need to find your way in the outdoors. This course is focused on helping you learn to relate features on a topographic map to your surroundings, use a compass to determine true bearing to features and landmarks, use a map to determine your desired direction of travel, and to determine your location based on your surroundings.

**Using A Map**

**Objectives:**

Identify topographic features on a map—natural

* Identify contour lines; flat, gentle, and steep slope; cliff; summit; ridge, valley, gully, couloir; pass, saddle, col; lakes, ponds, tarns, streams
* Recognize and explain the significance of color on a map
* Identify contour interval based on legend
* Interpret landforms on a topographic map and relate to landforms in photographs (on field trip: in real life)

Identify map symbols—cultural

* paved road, dirt road, trail
* railroad
* powerline, pipeline
* structure

Use a map

* Understand basic terminology of a topographic map (scale, declination, datum, zone, easting, northing,)
* Calculate distance on a map
* Calculate slope angle
* Measure elevation, identify direction of slope, estimate and measure slope
* Identify “straight-up slope”; “straight-down slope”; traversing (30%)

Understand the UTM Coordinate System

* Plot a location using UTM coordinates
	+ Define UTM system and be able to use it
	+ Use UTM Grid Reader tool or estimate to measure UTM easting and northing on a map

**Using a Compass**

**Objectives:**

Identify compass features

* Identify and label features a compass (those required for wilderness navigation)
* Differentiate between true north and magnetic north
* Understand magnetic declination
* Set declination for your area on a compass
* Measure slope using inclinometer

***Using Map and Compass Together***

**Objectives:**

Plot and measure bearings on a map

* Demonstrate how to measure a bearing on a map
* Demonstrate how to plot a bearing on a map
* Explain the importance of taking accurate compass bearings (within 2 degrees)

(2o error = 60 yards per mile)

* Demonstrate fixing position using two or more lines of position

***Altimeter***

**Objectives:**

* Understand the importance of altimeter calibration
* Use altitude to fix position on a trail
* Use altitude and a bearing or bearings to fix position

***Global Positioning System and Electronic Navigation Planning***

**Objectives:**

* Understand uses and limitations of GPS receivers and smart phone apps
* Understand Datum selection
* Understand tools available from websites such as CALTOPO.com

***Routefinding***

**Objectives:**

* Understand how to use navigation principles to travel – and return - in the wilderness
* Plan route
* Establish baselines and handrails
* Mark departure and turnaround time
* Progress the route
* Follow your plan