

Chugach Mountain Institute

Level 1 Avalanche Safety, Snow-Season Backcountry Travel & Mountain Environment

Course Description:

For current and aspiring backcountry travelers that want to develop their ability to recognize and manage risks while traveling safely and efficiently in snowy mountain environments, especially in areas where professionally provided avalanche information is unavailable or limited. This course exceeds American Avalanche Association standards for Recreational Avalanche Level 1. It consists of pre-course recommended reading and online study with three in-person days of 8+ hours instruction (5+ hours instruction each day will be in the field). The small group instruction (5:1 max student:instructor ratio) by a Masters-level outdoor educator is differentiated according to individual and group needs. You must be able to travel with intermediate proficiency by ski or splitboard for three full days in potentially inclement weather.

Learning Objectives:

- Ability to access and apply informational resources relevant to understanding snow, weather, and avalanche conditions where you intend to recreate
- Basic understanding of avalanche mechanics: how, why, and where avalanches occur
- Understand objective and subjective risk and how to apply decision-making tools to manage risk
- Understand practices to improve safety: trailhead check-ins, safe travel protocols, group communication, debriefs
- Ability to identify and manage avalanche terrain in the field
- Efficiently and effectively use avalanche rescue equipment
- Basic understanding of the documentation of snow, weather, and avalanche observations
- Understand “informal” and “formal” means of snowpack (in)stability assessment and appropriate application of snowpits and (in)stability tests
- Understand terrain management as it applies to avalanche danger and different avalanche problems

Course Content

Pre-Course Study:

- Recommended online resources
 - Avy Savvy Tutorial (<https://avysavvy.avalanche.ca/en-ca/>)
- Recommended reading
 - Snow Sense (Fredston & Fesler)
 - Staying Alive in Avalanche Terrain (Tremper)

Avalanche Basics:

- Avalanche problem types and hard vs. soft slabs
- Red flags of avalanche danger
- Avalanche anatomy and terminology
- Avalanche problem formation and characteristics
- Classification (coding) of avalanches

Terrain:

- What is avalanche terrain?
- Terrain features: angle, shape, size, aspect
- Identifying avalanche start zones, tracks, and runout
- Terrain traps

Snowpack & Weather:

- Snowpack development and metamorphism: precipitation, temperature, wind, aspect
- Snowpack stratigraphy: strong and weak layers
- Snowpack structure, strength, energy, friction, and compressive support
- Snow climates and microclimates

Information Gathering:

- Access and understand informational resources
 - Weather forecasts, stations, models
 - Avalanche forecasts (where available and their limitations)
 - Professional and public observations
 - Trip planning resources
- Avalanche danger scale
- Avalanche danger rose
- Gathering information at home, on the drive, and in the field

Planning, Communication, & Decision-Making

- Pre-trip planning: weather, snowpack, terrain, partners
- Using technology at home and in the field
- Managing subjective risk: human factors
- Decision-making tools, safety rituals, emergency preparedness
- Communication and decision-making in the field
- Debriefs and experience sharing

Relevant Field Data & Observations:

- Red flags
- Identifying current avalanche problems and means of assessment
- Snowpits: site selection, tools, technique, tests
- Metamorphism and stratigraphy: layer identification, hardness, grain type and size
- Informal snowpack tests

Terrain & Travel:

- Trailhead check-in
- Mindful travel: snow, weather, terrain, group
- Terrain management and route selection appropriate for conditions
- Safe travel protocols
- Techniques to plan for, avoid, and escape an avalanche

Avalanche Rescue:

- How to use beacon, probe, and shovel
 - Beacon search: signal, coarse, fine
 - Probe technique and strategic shoveling
- Practice one- and two-person burial rescue scenarios
- Accident response
 - Leadership, communication, and planning based on conditions and resources
 - Common mistakes of rescuers
 - Field treatment of victim(s) and evacuation