

# APP CERTIFICATION TESTING CRITERIA

## AVALANCHE SCIENCE and EVALUATION

This practical test is an on the mountain, outdoor evaluation. It involves skiing in and making of observations of avalanche terrain. Candidates will be evaluated through questioning while riding chair lifts and while making on snow observations. Candidates will need to dig a snow pit and evaluate data collected.

### BASIC KNOWLEDGE AND SKILLS NEEDED TO ATTAIN **ASSOCIATE** STATUS:

1. Meteorology:
  - a) Instrumentation
  - b) Orographic lifting
  - c) Density
2. Snowpack:
  - a) Types of metamorphism
  - b) Creep and glide
3. Avalanche Phenomena:
  - a) Slab and loose avalanches – properties and nomenclature
  - b) Triggers
  - c) Parts of an avalanche path
4. Avalanche control:
  - a) Procedure at the control point
  - b) Safety during explosives control and ski cutting
  - c) Protective skiing and its benefits
  - d) Mandatory personal equipment for avalanche control

### ADVANCED KNOWLEDGE AND SKILLS NEEDED TO ATTAIN **CERTIFIED** STATUS:

1. Meteorology:
  - a) Understand and describe the role of meteorology in avalanche formation relating to: relative humidity, lapse rate, riming, the effect of wind on snow, cyclonic circulation, surface hoar, crystal types, etc.
2. Snowpack:
  - a) Describe Equilibrium ,Kinetic and Melt Freeze metamorphism
  - b) Snow pit observations
  - c) Effect of rain on snow
3. Avalanche phenomena:
  - a) Type of failure leading to avalanche release

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4. Avalanche Control:
  - a) Effects of skier compaction
  - b) Use of detonation cord and cornice control
  - c) Optimum shot placement
  
5. Avalanche Rescue:
  - a) Time concerns, leadership and route finding safety
  - b) Should be able to demonstrate sufficient knowledge to be able to assume leadership role in an avalanche rescue

### **Note:**

This is an outdoor, oral and practical, skills test. It is about an hour and a half in length. Your skiing skills need to be suitable to travel in avalanche terrain from the standpoint of slope difficulty. As with all practical tests you may be asked if your evaluation can be audited by a non-testing person for education purposes. You have the right to deny this opportunity. More than one judge may be present during your evaluation for consistency of evaluation.

### **Required Items for Testing:**

1. If new to testing you will need your Patrol Director's sign-off to confirm that you have the skills and knowledge to perform the testing criteria.
2. Be ready to ski with all equipment and clothing at the time of testing.
3. Shovel and probe.
4. Snow Study Kit: crystal cards, thermometers, measuring tools, snow saw.

### **References:**

- The Avalanche Handbook: McClung and Schaerer
- Snow, Weather, and Avalanches: Observational Guidelines for Avalanche Programs in the United States [www.avalanche.org/~research/guidelines/](http://www.avalanche.org/~research/guidelines/)
- American Avalanche Association [www.americanavalancheassociation.org/](http://www.americanavalancheassociation.org/)
- Local Ski Area Protocol
- Association of Professional Patrollers – Study Guide