Mountaineering Activities, Topics and Skills

Introduction
The Outdoor Adventure mountaineering programs are designed to provide a progression that addresses the combination of activities commonly referred to as mountaineering. We suggest that mountaineering is not a standalone set of techniques in the same sense that rock climbing is. Rather, it describes the mind set of participants and the environment where the activity takes place. Mountaineering is “big feature” oriented, typically summit but also significant mountain features such as arêtes, pinnacles or gendarmes.

The mountaineering progression provides participants first with a basic skill set that supports further participation in increasingly technically advanced skills. No particular skill set is viewed as more important than another – all are important to the mountaineer.

The philosophy behind the design is that participants have the opportunity to learn the skills listed within each activity. Experiences are designed with learning outcomes as the priority. Activities are not particularly strenuous, they are not anymore physically demanding than is necessary to practice the skills. Also, climbing a mountain or “summiting” something is not generally included in the outcomes.

Warning:
Mountain climbing, like other adventure sports, is dangerous. Although the number one priority of every Outdoor Adventure outing is safety there are risks associated with mountain climbing. These risks include but are not limited to minor injuries such as abrasions, strains and sprains too more serious injuries such as broken bones, head injuries and even death.

The Mountaineering Activities
The activities within the broad understanding of mountaineering include seasonal camping, seasonal bivouac, technical skills, seasonal backcountry travel, technical skills, rock climbing, ice climbing and travel in avalanche terrain. Other topics not included within this mountaineering progression but also important include orienteering (map and compass) GPS, altimeter use, leave no trace, first aid and other.

Mountaineering Topics and Skills
Each of the activities above includes a set of topics. Each topic is further broken into skills, where appropriate.

Each of these activities (bold type) and the topics included are listed below.

Camping (winter and summer are separate activities)
- Gear
- Menu planning
- Site selection
- Set up
- Cooking

Backcountry Travel (winter and summer are separate activities)
- Gear (hiking, snowshoeing, skiing)
- Techniques
Food considerations
Speed considerations
Time considerations

**Bivouac** (winter and summer are separate activities)

- Gear
- Site selection
- Planned and unplanned
- Shelters

**Roped Mountaineering** *(third class to easy fifth class)*

- Gear
- Knots
- Rappelling
- Belaying
- Simul-climbing

**Rock Climbing - Rock I, II and III** *(fifth class)*

- Gear
- Knots
- Belaying
- Anchoring
- Lead climbing
- Rappelling
- Climbing techniques

**Ice Climbing**

- Gear
- Knots
- Anchors
- Belaying
- French technique
- Front point technique
- Tooling
- Leading

**Travel in Avalanche Terrain**

- Avalanche terrain
- Forecasting
- Survival
- Rescue
- Route selection

Mountaineering Activities, Topics and Skills

**Topic: Winter Bivouac**

Exposure to winter conditions at high altitude can be deadly. A planned bivouac (bivi) can be safe and even quite comfortable, however. Decisions and plans contribute to forced bivi’s including start time, turnaround time and continuing in bad conditions.
The following is a list of skills included in planned and forced bivi situations:

- Gear for winter bivis
- Sleeping bag
- Bivi sack
- Tent
- Layers
- Sleeping pad

**How we lose heat and what prevents it**
- Convection – wind barrier
- Conduction - insulation
- Respiration – not much to do
- Radiation – reflective layer
- Evaporative – stay dry, VBL

**Avoiding a forced bivi**

**Impromptu shelters**
- Snow cave
- Wind break
- Low lying areas v ridges
- Lee slopes

**Survival and rescue**
- Best practices to keep warm
- Personal beacons
- Fire
- Survival kits

**Reading:**
- The Freedom of The Hills
- Into Thin Air
Roped Mountaineering

Rope techniques in mountaineering tend to be less reliant on mechanical systems. Instead, they are reliant on natural features, human strength, body weight and technique making them potentially more prone toward human error.

The following is a list of skills included in roped mountaineering

Gear for rock and snow (non-winter and non-glacial)
- Rope
- Slings
- Prussic
- Karabiners
- Harness’s
- Chocks
- Ice ax
- Snow anchors

Anchoring - rock
- Using chock stones
- Knots as chocks
- “Store bought”
- Pitons
- Fixed

Anchoring – snow (non-winter and non-glacial)
- Bollard
- Deadman
- Picket
- Fluke

Belaying - rock
- Hip belay
- Running belay
- Simul-climbing
- Signals – “On belay”, etc...

Belaying – snow (non-winter and non-glacial)
- Boot ax belay

Rappelling
- Length
- Dulfersitz
- With gear
- Retrieving the rope
- Signals – “Off rappel”

Reading:
The Freedom of The Hills
Topic: Technical Rock
Mountain climbing routes often include technical rock and ice climbing. We teach these techniques within our regular rock and ice climbing activities. OA offers a multi day intensive ice climbing course in Ouray each January. Please check the schedule for dates.

OA Rock Climbing Outline
Is transportation included? Yes
What time? 8:00 AM to 3:00 PM.
Where do we meet? East entrance PER building - parking lot.
What’s included? Everything you need except personal gear.
What do I need to bring? Water, lunch and snack, day pack, light hikers or tennis shoes, jacket, sweater, shorts if it’s hot, long pants for cool weather, camera, climbing gear that you have, sunglasses and sun screen. If you think you might need or want something – bring it!
Can I bring a friend? Guests (non-students) are welcome but they must be registered and pay the additional $5 guest fee ($30 total).

Rock shoes are included! We will bring rock shoes and fit them the day of the outing.

Rock Outing Descriptions:
Introduction to Rock Climbing I
On this one day outing to Table Mountain in Golden we will introduce you to the basic and fundamental techniques that every rock climber uses every time she goes climbing. The techniques include tying in to the rope, belaying and climbing techniques. Issues of leadership and safety in the outdoors are an integral part of this experience. Communication, cooperation and support are key to a successful rock climbing experience.

Introduction to Rock Climbing II
After reviewing level I material, we will focus on anchor placement, setting up top rope belays, repelling, belaying and more climbing techniques.

Rock Climbing III
We will offer you an opportunity to push your climbing abilities to their limit and beyond (ratings will range from 5.7 to 5.11). We will focus on pure technical free climbing skills and techniques in a safe, top roped environment. Instructors will be on hand to provide safety and advanced technique instruction.

Advanced Rock Climbing Techniques
When it comes to rock climbing techniques, learning never really stops. Perhaps you have been climbing for a while and would like to move to the next level. Maybe you want to start lead climbing, learn traditional techniques, learn aid climbing or start climbing multi-pitch routes. If this interests you, please get in touch with the OA department so we can begin planning an experience based on your needs.

Rock Climbing - Lead Climbing Techniques - Semiprivate Instruction
Scheduled by arrangement, call 303 556-8363
Following a review of techniques we will spend the day practicing placing protection, discussing lead techniques and either doing a mock lead of a one pitch route where the leader is top roped or we will do a multi-pitch route (depending on your interests).
Important Info:
Please keep in mind that one cannot become proficient in the safety techniques that are integral to safe participation in rock climbing in one day. Further instruction is recommended for those who wish to pursue the sport beyond this introductory level.

Topic: Technical Ice
Mountain climbing routes often include technical rock and ice climbing. We teach these techniques within our regular rock and ice climbing activities. OA offers a multi day intensive ice climbing course in Ouray each January. Please check the schedule for dates.

Ice Climbing Info

Is transportation included?  No, we will meet at the trailhead. Check with us, however - if you need a ride, we might be able to provide one

What time?  8:00 AM to 3:00 PM

Where do we meet?  East entrance PER building parking lot or at the climbing area

Where will we climb?  To be determined, based on conditions

What’s included?  Helmets, harnesses, ice tools, ice screws, climbing hardware, ropes and crampons. We can provide a fleece layer or jacket, if needed

What do I need to bring?  A liter of water, lunch and snack, day pack, hiking boots, non-cotton warm layers including: jacket, sweater, nylon shell pants, gloves and hats and other cold weather gear plus extra layers, camera, climbing gear that you have, sun glasses and sun screen. If you think you might need or want something – bring it!

Can I bring a friend?  Guests (non-students) are welcome but they must be registered and pay the additional $5 guest fee for each day.

We are unable to provide boots - Good hiking boots are fine to learn to ice climb. If you would like to rent ice climbing boots, Bent gate Mountaineering is a good place.

Ice Climbing Outline:

Day one:
Meeting times and places: To be arranged
Safety Practices

Helmet use
Stay away from base
Double check - have someone else check knots

Gear Intro

Ice Tools:

Crampons
Assign and fit
Screws
Ropes
Rock anchors
Clothing

Philosophy

Low impact
Process verses product

Grading and difficulty

Grade 1 through 6
Ice rating - WI 1 through 7

Climbing

Knot instruction: Retraced figure eight
and ½ a double fisherman’s knot instruction
Top rope belay instruction
Rope-up and climb
Instruction is on-going
Technique demo: French technique & Front point technique

**Day Two**

Setting anchors on ice falls:
Gear
Load Sharing and directional considerations
Multiple anchors
Anchor evaluation

Lead climbing demonstration and discussion:
Equipment placement
Run-outs
Lead fall discussion and no fall ethic in ice climbing
Following and cleaning gear
Set top rope and climb
Belay instruction

Upon completion of climbing:
Anchor removal
Rope coiling demonstration
Process activities
Evaluation

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**Clear Creek Ice**

*From Boulder:*
Take 93 South form Boulder to Route 6.
Turn Left and follow route 6 up Clear Creek Canyon for 4.5 Miles and park on the South (LEFT) side of the highway.

*From Denver:*
Take I-70 West to West bound State Highway 58.
Follow State Highway 58 as it enters Clear Creek Canyon and turns into route 6. Follow Route 6 up Clear Creek Canyon for 4.5 Miles and park on the South (LEFT) side of the highway.
Coming From the South? Use 93 or Colfax to Route 6
From Boulder:
Take 93 South form Boulder to Route 6.
Turn Left and follow route 6 up Clear Creek Canyon for ## Miles and
park on the South (LEFT) side of the highway.

From Denver:
Take I-70 West to West bound State Highway 58.
Follow State Highway 58 as it enters Clear Creek Canyon
and turns into route 6. Follow Route 6 up Clear
Creek Canyon for ## Miles and
park on the South (LEFT) side of the highway.

Coming From the South? Use 93 or Colfax to Route 6

Topic: Travel in Avalanche Terrain
This is taught as a regular part of the Outdoor Program schedule. Please check the schedule for dates.