

# **Bellingham Mountaineers Intermediate Mountaineering Course Manual**





# Intermediate Mountaineering Course Manual

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## Welcome to the Intermediate Mountaineering Course!

The Bellingham Mountaineers Intermediate Mountaineering Course presents the techniques necessary to climb the rock, snow, and ice typically found in the Cascade and Olympic mountains of the Pacific Northwest. In addition to climbing techniques the course emphasizes safety, leadership, and climbing instruction. Course graduates will have the knowledge and skills to organize and lead basic-level climbs and to participate in intermediate-level alpine, rock and ice climbs.

Successful completion of this course requires a significant commitment of time, effort, and money for travel and equipment. It is the student's responsibility to attend all course activities and complete all course requirements. Each student must seriously assess his or her commitment of time and money prior to beginning this course.

### Course Timeline

Because there is a significant amount of learning, practicing, teaching and experiencing, the general timeline to graduate the course is five years.

- Within the first three years students should complete all lectures and field trips
- Within the first four years students should have completed the requirements for teaching the Basic Mountaineering Course
- Within five years students should have gotten in all of their experience climbs and rope leads for Basic Mountaineering climbs

This is only a recommended timeline. At which point you complete each requirement is up to you.



## Course Texts

All course texts are highly recommended, very helpful, and will be referenced throughout the course, but are not necessarily required. You may be able to borrow from other students / instructors or the public library:

- Mountaineering, Freedom of the Hills latest edition
- Rock Climbing Anchors by Craig Luebben
- Climbing Self Rescue by Tyson and Loomis
- Climbing Anchors by John Long 2nd ed
- Alpine Climbing by Houston and Cosley
- Traditional Lead Climbing by Heidi Pesterfield
- Glacier Mountaineering: An Illustrated Guide to Glacier Travel and Crevasse Rescue by Andy Tyson and Mike Clelland
- Backcountry Skiing by Martin Volken
- How to Rock Climb, John Long
- Staying Alive in Avalanche Terrain by Bruce Tremper 3rd ed
- Accidents in North American Mountaineering (any recent edition)
- Self-Rescue by David Fasulo (2<sup>nd</sup> Edition)
- Glacier Travel and Crevasse Rescue by Andy Selters
- Glaciers! The Art of Travel and the Science of Rescue by Michael Strong, Eck Doerry, and Ryan Ojero
- Ice & Mixed Climbing Modern Techniques by Will Gadd

## Graduation Requirements

- Attend all Intermediate course lectures or pre-trip meetings
- Complete all Intermediate field trips in a safe and competent manner.
- Instruct at least once at each of the Basic Mountaineering field trips. (Basic Alpine Ice is an exemption due to location and party size limits)
- Lead at least one Basic Mountaineering field trip.
- Complete six basic climbs in a safe and competent manner, as a rope leader or climb leader, including at least three rock and two glacier climbs. Each climb must be of a separate and distinct route.
- Complete five Intermediate climbs in a safe and competent manner, including at least 2 ice and 2 rock climbs. Each climb must be a separate and distinct route. A total of two climbs may be scheduled private climbs; however, a maximum of one climb of any specific type (ice, rock or mountaineering) may be included. (See private climb section)
- Demonstrate leadership and mountaineering competence to the satisfaction of the Climbing Committee. Competence shall include mountaineering judgment, safety, and technical competence in mountain climbing. Experience in organizing and leading mountaineering activities is encouraged.
- Hold a current Wilderness First Aid certification or equivalent when applying for graduation.
- Complete AAIRE Level I or equivalent. (Required prior to instructing at Basic Avalanche Avoidance)
- Submit a written graduation application to the Climbing Committee.

## Course Extension

A written request for an extension beyond the allotted five years to graduate may be granted upon approval of the Bellingham Branch Climbing Committee.



## Intermediate Climbs

These climbs can range from 4 pitches on alpine rock to 20+ mixed rock and ice. They vary greatly in length, difficulty and character. However, all require a minimum level of climbing skills, experience and physical stamina. Most intermediate climbs are rated Grade II or III according to the National Climbing Classification System (NCCS). On intermediate rock climbs, most routes are rated from 5.0 up with at least 4 climbing pitches. The typical rock climb includes 4-8 pitches. These climbs often include roped and un-roped pitches of 4<sup>th</sup> class climbing and 3<sup>rd</sup> class scrambling. The technical sections of intermediate ice climbs generally consist of hard snow or glacial ice at angles of 35 to 55 degrees for five hundred to several thousand feet. Intermediate climbs often include strenuous cross-country approaches involving brush and hard snow. Intermediate mountaineering climbs will require the same minimum competence and stamina as other intermediate climbs however there may be fewer technical section or the technical sections will be shorter than those on intermediate rock or ice climbs. By talking with other climbers and referring to the *Intermediate Climbs Guide*, it is possible to choose climbs that match your current ability and confidence level. Rope leading on basic climbs will also develop your skills and help increase your confidence.

## Prerequisites to Participating in Intermediate Climbs (and receiving credit)

- Current enrollment as an intermediate student or an intermediate graduate and completion of Small Party Rock Rescue or leader permission.
- Completion of Intermediate Rock 1 FT and Rock 2 FT before participating on intermediate rock climbs.
- Completion of Advanced Crevasse Rescue prior to glacier travel with party size less than 3.
- Completion of Intermediate Ice 1 FT prior to participating on intermediate alpine ice climbs.
- Completion of Intermediate Water Ice FT prior to participating on intermediate water ice climbs.
- Attaining the summit on those climbs listed as requiring summits or completion of the climb route on those climbs so specified. **The student must lead approximately 50% of the route.**
- Complete the entire trip in a safe and competent manner. The climb leader has the option of denying credit for the climb if the student did not meet these requirements, even if the summit was reached.
- All climbs must be conducted in a manner consistent with the Climbing Code.

## Privately Organized Intermediate Climbs

Two of the five required intermediate-level climbs may be privately organized climbs. However, there is a restriction: only one climb of any specific type (i.e., ice, rock, or mountaineering) may be included. The purpose of these climbs is to give intermediate students the opportunity to organize and lead a climb under the guidance of a Mountaineers' Climb Leader. This also provides the opportunity of climbing with a group of friends. To be recognized for credit, privately organized climbs must conform to the following rules:

- Prior approval by a climbing committee member / climb leader.
- If the proposed climb is NOT listed in *The Mountaineers Intermediate Climbs Guide*, obtain the approval of the Bellingham Climbing Chair before the climb.
- After the climb, file a trip report with the Bellingham Climbing Committee. **This report must be filed to obtain climb credit.** Please file a report even if you did not reach the summit.





## Reporting An Overdue Climber

Climbs are often long and strenuous, take place on Mother Nature's terms, and are carried out with safety as the foremost concern. As a result, some trips are late in returning to the cars or arriving home. Occasionally, climbers must bivouac an additional night and not return until the following day. For this reason, it is important that relatives or close friends advised of your activities do not overreact to your tardiness. **DO NOT** promise to return by a certain time - spouses, parents, and others have been known to panic if you have not returned by then.

Climb leaders have been chosen for their technical ability, reliability and leadership qualities. They have the ability to perform and assist with proper first aid procedures and mountain rescue. They pre-designate someone at home to notify the Climbing Committee Chair in case the party is late returning. This initiates the proper rescue procedures. Should this become necessary, or should help be requested by persons who have been sent out by a climbing party, families of the party will be notified.

**IN NO CASE SHOULD RESCUE AUTHORITIES BE DIRECTLY CONTACTED.** Instead, if a climber has not contacted home after a scheduled Intermediate Course Climb by NOON on the day following the climb, relatives and friends of the climber should attempt to reach the following individuals in the order listed until successful contact is made and the person acknowledges that they will pursue the matter and advise the proper authorities.

1. Trip Leader
2. Climbing Committee Chair
3. Bellingham Branch Chair

Please be assured that there are always enough people monitoring the course trips and activities that, should rescue personnel be required, the student's family will not be required to initiate the rescue process.

Fill in the trip leader's name and phone number and leave a copy of the form on the next page with the person who expects you to come home before each climb. Discuss this procedure with your spouse, relative or friend prior to going on field trips and climbs.

## Climb Itinerary To Be Left With A Responsible Person

Date and Departure Time	
Date and Estimated Time of Return	
Climb Leader(s) and Phone Number(s)	
Climb Participants and Phone Numbers	
Trailhead, Vehicle Make, Model, License Number	
Climb and Route Description	

### What to do in case a climber is overdue

Climbs are often long and take place on Nature's terms with safety as the foremost concern. As a result, some trips are late in returning to the trailhead. Occasionally climbers bivouac an additional night and return the following day. **Climb parties are not considered late unless they have not contacted home by noon of the day following the return date specified above.**

**In no case should rescue authorities be contacted directly.** Instead relatives and friends should attempt to reach the following individuals, in the order listed, until successful contact is made and the person acknowledges that they will pursue the matter and advise the proper authorities.

- Contact List:
1. Trip Leader
  2. Climbing Committee Chair
  3. Branch Chair

*Photocopy this page so you have copies to fill out for all your Mountaineers climbs.*



## Instructional Requirements

Graduation requirements include instructing at each of the Basic Mountaineering field trips. Teaching enhances your own grasp of concepts and techniques as well as your leadership abilities in working with less experienced climbers. Although you are not expected to be an expert, you should thoroughly re-familiarize yourself with the Basic Mountaineering techniques that are taught in before instructing. Remember that while the intermediate course may be a good place to experiment with new ideas and techniques, the basic course has a large amount of standardized material that is approved in advance by the climbing committee for use in the basic course. Teaching new or different techniques may only confuse students and other instructors.

A good instructor strives to create a friendly atmosphere for the students. Patience, positive encouragement and praise are more effective than harsh criticism and condescension. Make sure your instructions are clear and simple. Students are often confused and overwhelmed by too much information. Treat everyone with courtesy and respect.

The 3Ds can be an effective teaching method:

**DESCRIBE** - Describe the technique and how to do it. Try to be clear, simple and succinct.

**DEMONSTRATE** - Demonstrate the technique to the students.

**DO** - Ask the students to do the technique.

## Leadership and Mountaineering Competence

In order to graduate from the Intermediate Mountaineering Course you are required to demonstrate mountaineering competence and leadership. Unlike other requirements, evaluating whether a person has demonstrated mountaineering competence and leadership is subjective. For this reason each Intermediate Course Graduation application is reviewed and approved by the Climbing Committee. To help the committee properly evaluate your application for graduation, keep detailed records of the activities in which you have participated that demonstrate your mountaineering competence and leadership.

Mountaineering competence encompasses more than just rock and ice climbing skills. In addition to technical challenges, climbing a mountain involves additional factors that include: complex route finding, variable weather conditions, moving over unstable terrain, differing capabilities of party members, encountering highly variable technical difficulties and objective hazards such as rock and ice fall.

To demonstrate leadership skills the graduating student should have experience organizing and leading mountaineering activities at the basic level. The leadership requirement is in place because the Intermediate student is expected to develop leadership skills in the mountains.

Here are some recommended ways to develop and subsequently demonstrate your general mountaineering competence and leadership abilities:

- Instruct at Basic Field Trips
  - Instructing basic students helps instill and reinforce your mountaineering skills.
- Rope Lead on Basic Climbs
  - Rope leading helps develop general mountaineering competence, judgment and self-confidence prior to participating on intermediate climbs. Six distinct (different routes) basic rope leads are required for graduation; however, students should feel free and are encouraged to rope lead on as many basic climbs as possible.

## Expectations of Rope Leaders on Basic Climbs

As a rope leader on Basic Climbs you will be expected to:

- Assist the climb leader in organizing and managing the climbing party including route finding, setting up rappels, and resolving situational issues.
- Set an example for students to follow, in particular regarding the Climbing Code and environmental impact (see below).
- Demonstrate competence and knowledge in mountaineering skills such as climbing technique, route finding, off trail travel, safety, as well as leadership and teamwork skills, and assist the students in developing these same skills.



## Becoming a Climb Leader

The Climbing Committee administers the Climb Leader List. Applications for membership on the list are sent to the Climbing Committee for consideration. A Climb Leader may lead any technical climb for the club.

The Climbing Committee evaluates the general mountaineering aptitude, leadership aptitude and, most importantly, the judgment of each applicant for the Climb Leader List. Particular attention is given to experience gained through leading private climbs, serving as an assistant leader on Basic and Intermediate climbs, and assisting and teaching at field trips.

Leading climbs for The Mountaineers is a tremendous responsibility. As a climb Leader, you are responsible for the welfare and well being of every member of the party, and for doing your best to make the trip enjoyable and successful. Take careful note that “successful” is not necessarily synonymous with reaching the summit. The summit is only the halfway point of a trip. The true measure of success is that everyone makes it home safely. Leading climbs for the Mountaineers can be one of the most rewarding things you can do. Sharing that moment when a student suddenly realizes what they are capable of doing can be very fulfilling.

### Climb Leader Minimum Requirements:

- Must be a current member in The Mountaineers.
- Must be at least 18 years of age.
- Must be a graduate of the basic course or hold basic equivalency.
- Must have participated in three or more successful basic or intermediate climbs.
- Must participate in three rope leads of successfully summits of at least three basic climbs. At least one of these climbs must be glacier and one must be rock.
- Must be the mentored lead of one successful basic climb.
- Must possess and provide a current Wilderness First Aid, or equivalent wilderness medicine certification.
- Must successfully complete Small Party Rock Rescue Course / Seminar.
- Must submit to Bellingham Climbing Committee a climb leader letter of intent that states you have met the minimum requirements and include a climbing résumé that includes dates and routes of climbs completed. Training received by the applicant should be listed with dates and names of the sponsoring organization.

## **Mentored Lead on Basic Climbs**

Leadership experience can be gained by acting as the leader of a basic climb under the guidance of a climb leader. The mentored leader makes all of major decisions including route finding, personnel decisions, evaluating climbing hazards and conditions, and problem solving. The mentored lead also does all of the organizational work for the climb including organizing the team and conducting the administration in the Mountaineers database.



## Winter Mountaineering Lecture

**Prerequisites:** None

**Required Reading:** *Skiing by Martin Volken et al (Ch1 pg 47-79, Ch 2 pg 106-129, Ch 4 pg 167-177, Ch 5 All, Ch 6 All, Ch 8 All, Ch 10 pg 307-323). Review Snow Sense*

**Optional Reading:** *Allen and Mike's Really Cool Backcountry Ski Book by O'Bannon and Clelland, Staying Alive in Avalanche Terrain by Bruce Tremper 3rd ed*

**Required Equipment:** Maps, weather forecast, avalanche forecast and snowpack history, route beta

**Objectives:** Prepare for a winter ascent

**Outline:**

1. Differences for winter climbs
  - Avalanche concerns
    - Decision making: data, observations, human factors, weather, snowpack analysis, terrain evaluation
    - Beacon check in the field: send/receive range check
  - Weather
    - Colder and more volatile
    - Shorter windows
  - Approaches
    - Longer and more time consuming
    - Floatation
  - Route conditions
    - More variable day to day and morning to night
  - General gear
  - Climbing gear – different climbs = different gear
    - Rock pro: nuts, cams, tricams, pins
    - Ice pro: screws, abalakov, bollards
    - Snow: glacier gear, pickets, axe
    - Snow belays
  - Snow camping
    - Planned shelters
    - Emergency shelters
2. Trip Planning
  - Gathering info before
    - Route info: Web, books, people
    - Forecasts: weather and avalanche
  - Route Planing
    - Plot out on map
    - GPS waypoints
    - Time estimations for each leg and total
    - Alternate route choices
    - White out plan

## Winter Mountaineering Field Trip

**Required Equipment:** Ten essential systems, overnight gear, specific gear TBD at pre-trip meeting/lecture

**Outline:** Go outside

**Saturday & Sunday:**

1. Execute the planned climb or best suitable alternative
2. Consider the following:
  - In the field
    - Constantly compare expectations with actual observations
    - Record weather and snowpack data
    - Terrain choices
    - Field evaluations
  - Field travel
    - Track setting : Steady pace, good angle, efficient line
    - Safety: Objective hazards, avy terrain, rock/ice fall, efficiency
    - Speed
  - Transitions
    - Right gear in right order
    - Anticipating needs – good timing
    - Safe spots





## Small Party Rock Rescue Lecture

**Prerequisites:** None

**Required Reading:** *Freedom of the Hills* Ch 22, *Climbing Self Rescue* by Tyson and Loomis, see additional material below

**Optional Reading:** *Self-Rescue* by David Fasulo

**Equipment:** Paper & pencil, typical day of rock climbing gear including 20 ft 6 or 7mm cordellette

**Objectives:** Using written, physical or verbal methods describe the following scenarios:

- Tandem rappel using two tubular belay devices on a 60m rope
- Tandem side by side rappel using a tubular belay device on the rescuer and a figure 8 knot on the victim with the rope acting as a 2:1
- Leader descends to an injured belayer and both return to the ground
- Belayer ascends to an injured leader and both return to ground

**Outline:** Our main goal: Getting injured people safely back home using the gear we have.

1. What you will learn in this class: 2 kinds of 2 person rappels, how to rescue an injured belayer, how to rescue an injured leader.
2. What you will not learn in this class: risk management, search methods, interacting with SAR, traditional technical rescue, group management to prevent accidents, or first aid.
3. You will probably never use these techniques:
  - a. Causes of deaths in mountaineering, from *Accidents in North American Mountaineering*
  - b. Anecdotal accidents from group members
  - c. Rarity of technical rescue
4. Students spread out gear – what did you bring and why? Is there anything that you would not realistically take with you? Anything that you left at home?
5. Lesson 1: Students describe how you would rappel with a rescuer and victim?
  - a. Discuss loads, logistics, limits of available equipment, safety considerations
    - i. Tandem rappel using 2 tubular belay devices on a standard doubled rope. Describe verbally and visually, then have students demonstrate by doing, drawing, or telling.
    - ii. Counter balance rappel- side by side rappel using a tubular belay device on the rescuer, and a figure 8 on the victim, with the rope acting as a 2:1. Describe verbally and visually, and then have students demonstrate by doing, drawing, or telling.
    - iii. Other methods?
6. Lesson 2: Students describe how a leader would rescue an injured belayer

- and both return to the ground. Describe verbally and visually, then have students demonstrate by doing, drawing, or telling.
7. Lesson 3: (if there is time) Students describe how a belayer would rescue an injured leader and return to the ground. Describe verbally and visually, then have students demonstrate by doing, drawing, or telling.

## Small Party Rock Rescue Field Trip

**Required Equipment:** Typical day of rock climbing gear.

**Outline:** Everybody demonstrates:

- a. Tandem rappel using 2 tubular belay devices on a standard doubled rope;
- b. Tandem side by side rappel using a tubular belay device on the rescuer, and a figure 8 knot on the victim, with the rope acting as a 2:1;
- c. Leader descends to injured belayer and both return to the ground;.
- d. Belayer ascends to injured leader and both return to the ground.

**Saturday & Sunday:**

1. Practice/demonstrate techniques on flat ground.
2. Move to vertical terrain and practice/demonstrate the four outlined scenarios.

Scenario 1: tandem rappel using 2 tubular bely devices on a standard doubled rope

1. Set up a line for a rappel.
2. Victim hooks up tubular belay device closest to the anchor.
3. Rescuer hooks up tubular belay device just below victims.
4. Rescuer and victim connect to each other with a short loop (Option: a yoke, take a long tether, fold in half, tie an overhand in the middle, one tail to rescuer, one tail to victim, two tails to tubular belay device)
5. As rescuer descends, they pull victim down with them.
6. In the field, one tubular belay device often seemed to be enough on a 10mm rope, with a safety backup hitch.

Scenario 2: Counterbalance rappel

1. Victim ties in with figure 8, rope goes up to anchor and back down to rescuer.
2. Rescuer connects to rope with tubular belay device. The vast bulk of the rope is below the rescue's tubular belay device (thrown down the wall, flaked into a bag, possibly held by the victim).
3. Rescuer and victim connect to each other with a short loop.
4. As rescuer lets out the rope, both descend 1 foot for every 2 feet of rope that goes through the tubular belay device.

Scenario 3: Leader descends to injured belayer and both return to the ground

- device
1. Leader builds anchor and ties off rope.
  2. Leader descends to belayer with prussiks or tubular belay device
  3. Leader ties off belayer, removes rope from belayer and anchor, flakes rope.
  4. Leader prussiks rope, cleans pro, pulls rope, sets up a rap, and raps down to belayer.

Scenario 4: Belayer ascends to injured leader and both return to the ground.

1. Belayer ties off rope and ascends to leader with prussiks.
2. Belayer builds anchor and ties off leader to anchor with load releasing hitch.
3. Belayer descends, cleans pro, unties from lower anchor, and flakes out rope.
4. Belayer ascends to leader, pulls rope, and sets up a rap (good place for a counterbalance).
5. Belayer hooks leader into rope with tubular belay device, then deploys load releasing hitch to transfer load to the rope.
6. Belayer and leader rap down.

Optional Scenario 5 (if there is time): Raises! Rowing haul, C on a C, converting 3:1 to 6:1, others



### Tandem Rappel

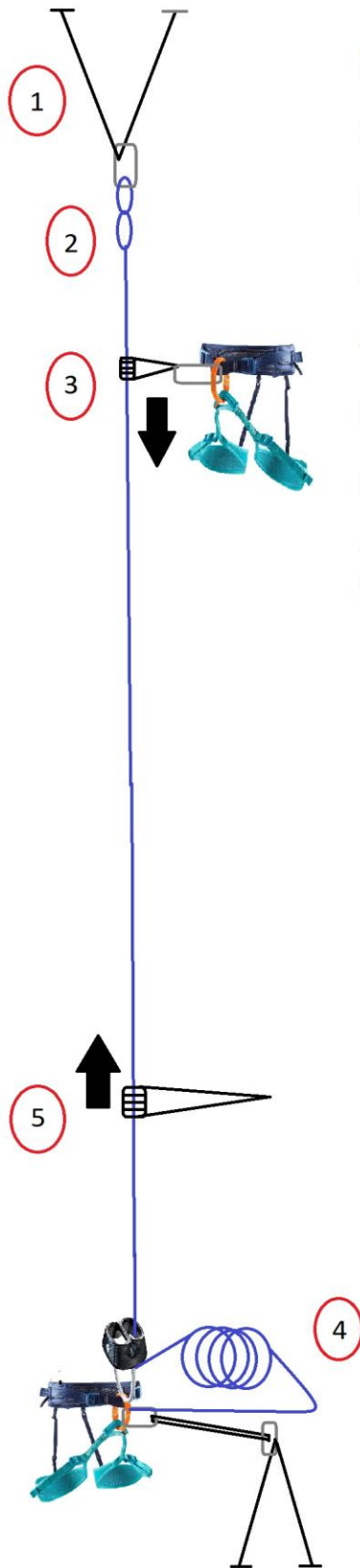
- 1: Setup for standard 2 strand rappel
- 2: Rescuer sets up below victim
- 3: Rescuer and victim are tethered together at belay loops
- 4: Rappel like normal with rescuer (lower person) in control



### Counterbalance Rappel

- 1: Victim stays tied in with figure 8 though anchor
- 2: Rescuer sets up below victim on a single strand rappel
- 3: Rescuer and victim are tethered together at belay loops
- 4: Rescuer rappels hence pulling victim down with them on the other strand

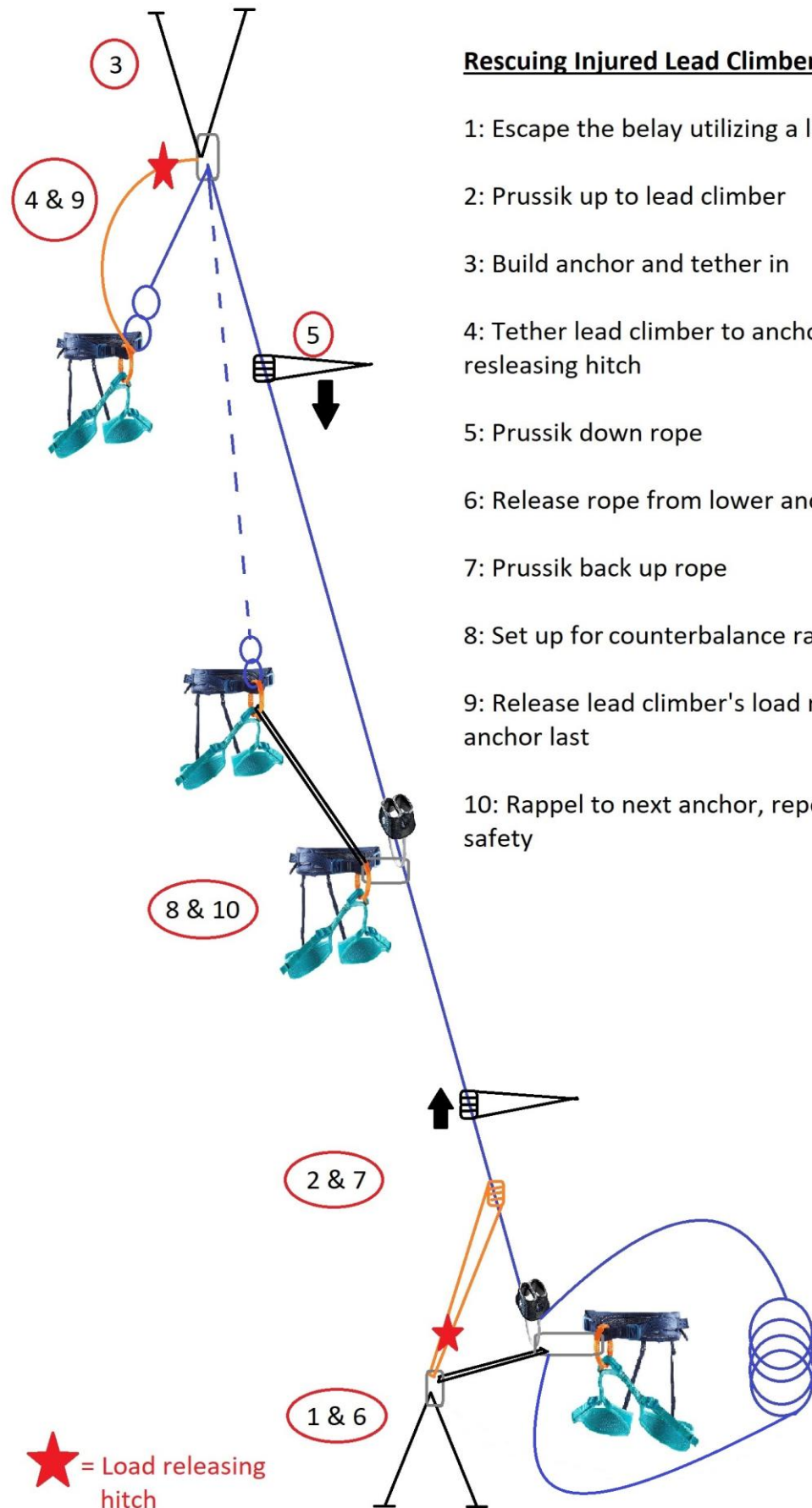
## Small Party Rock Rescue



### Rescuing Injured Belayer

- 1: Lead climber builds anchor and tethers in
- 2: Ties off end of rope with figure 8
- 3: Prussiks down to belayer
- 4: Stabilize belayer and free rope
- 5: Prussik back up rope to anchor
- 6: Pull up rope and setup for standard rappel
- 7: Rappel down to belayer. Continue rappeling with injured belayer until you reach safety.

## Small Party Rock Rescue



### Rescuing Injured Lead Climber

- 1: Escape the belay utilizing a load releasing hitch
- 2: Prussik up to lead climber
- 3: Build anchor and tether in
- 4: Tether lead climber to anchor utilizing a load releasing hitch
- 5: Prussik down rope
- 6: Release rope from lower anchor
- 7: Prussik back up rope
- 8: Set up for counterbalance rappel
- 9: Release lead climber's load releasing hitch from anchor last
- 10: Rappel to next anchor, repeat until you reach safety



## Leading on Rock Lecture

- Prerequisites:** Small Party Rock Rescue is **strongly** recommended
- Required Reading:** *Rock Climbing Anchors* by Craig Luebben, *Climbing Anchors* by John Long, *Alpine Climbing* by Houston and Cosley, *Traditional Lead Climbing* by Heidi Pesterfield, *Freedom of the Hills* Chapters 10-13
- Required Equipment:** Harness, belay device, cordalette, slings, carabinners, other rock gear you have questions about.

**Objectives:**

- Gear & equipment: What's out there & what's needed on climbs
- Trip planning and preparation from a leadership role
- Discussion and demonstration of field trip material

## Leading on Rock Field Trip

**Required Equipment:** Ten essential systems, rock climbing gear, camping gear

**Outline:** Saturday and Sunday

1. Rendezvous at predetermined climbing area
2. Placing Gear
  - Selecting rock suitable for placement
  - First placement = active
  - Nuts & Hexes-maximize contact
  - Tri Cams
  - Cams-under & over camming, walking
3. Building Anchors
  - Re-emphasize ERNEST
  - Must withhold up & downward force for multi-pitch
  - Equalized cordelette, top shelf
  - Master Point
  - Equalette
  - Quad
4. Clipping
  - Choosing correct sling length
  - Proper clipping
  - Backclipping
  - Z Clipping
5. Belaying from the top
  - Different belay methods
6. Leading
  - On top rope lead up a second rope and clip gear
  - On top rope lead up a second rope and place gear-placement is critiqued
  - Lead using pre-placed gear
  - Lead using pre-placed gear and place gear-placement is critiqued
  - Lead, follower critiques
7. Make a plan
  - Who leads
  - Anchor method
  - Belay method
  - Rappel/lower



## Efficient and Safe Rock Climbing Lecture

**Prerequisites:** Leading on Rock

**Reading:** *Rock Climbing Anchors* by Craig Luebben, *Climbing Anchors* by John Long, *Alpine Climbing* by Houston and Cosley, *Traditional Lead Climbing* by Heidi Pesterfield, *Freedom of the Hills* Chapters 10-13

**Objectives:** Build on knowledge and skill gained during leading on rock to become more efficient on multi-pitch rock climbs using the following techniques:

- Simul-climbing
- Cow's Tail and other various belay techniques
- Advanced anchors and determining how to select
- Additional useful knots such as: garda hitch, klemheist, Yosemite finish
- Discussion of aid and French technique
- Climbing using different rope scenarios, coils, double, half etc
- Pitch transitions- swapping leads and block climbing

## Efficient and Safe Rock Climbing Field Trip

**Required Equipment:** Ten essential systems, rock climbing gear, camping gear

**Outline:** Saturday & Sunday:

Practice:

- Simul-climbing
- Cow's Tail and other various belay techniques
- Advanced anchors and determining how to select
- Additional useful knots such as: garda hitch, klemheist, Yosemite finish
- Discussion of aid and French technique
- Climbing using different rope scenarios, coils, double, half etc
- Pitch transitions- swapping leads and block climbing

## Leading on Alpine Ice Lecture

- Prerequisites:** Leading on Rock, Small Party Rock Rescue
- Required Reading:** *Freedom of the Hills* Ch 18 & 19
- Optional Reading:** *Climbing Ice* by Chouinard (out of print but excellent)
- Required Equipment:** Gear you have questions about

**Objectives:**

- Gear and equipment: What's out there and what's needed on climbs
- Ice Types and climbing grades
- Trip planning and preparation from a leadership role
- Slide show and discussion

## Leading on Alpine Ice Field Trip

**Required Equipment:** Ten essential systems, Overnight gear, Ice Axe, Harness, Helmet, Slings, Carabiners, Crampons, Tools, screws if you own them

### Saturday:

Hike to camp & set up

1. Walking on ice (in balance)
  - No crampons, no axe
  - No crampons, with axe
  - With crampons, no axe
  - With crampons, with axe
2. Crampon Techniques
  - Duck walk (pied canard, French Technique)
  - Walking (pied marche)
  - Flat Footing (pied a' plat)
  - Rest Position (pied assis)
  - 3 o'clock (pied troisieme, American Technique),
  - Front point
3. Step Cutting-
  - Uphill- traversing with a big step for the corner of the switchback
  - Downhill-Straight down cuts, toe in and tilted slightly down.
  - Cut steps full foot size
4. Ice Axe Technique
  - Cane position (piolet canne)
  - Cross Body Position (piolet ramasse)
  - Anchor Position (piolet ancre)
  - Low Dagger (piolet panne)
  - High Dagger (piolet poniard)
  - Traction position (piolet traction)
  - Banister position
5. Practice ascending on top rope
  - Climb no axe or tool
  - Climb axe
  - Climb axe & tool

### Sunday:

1. Screw Placement:
  - Screw types and lengths
  - Longevity of placement
  - Angle of screw in relation to the ice
  - Selecting ice for screw placement
  - Clearing the outer ice and creating a starting point with an axe
  - Screw tight, but make sure hanger has a bit of play
2. Anchors/Hanging Belays:
  - First screw at neck level, use longest screw
  - Second screw high and to either side, use rope and clove hitches
  - Follower tethers into one and clove hitches into another
3. Rappelling:
  - V-thread
    - Back it up with something a good distance from the anchor. Last man pull the piece
  - Improvising with natural anchors



## Advanced Crevasse Rescue Lecture

**Prerequisites:** Small Party Rock Rescue

**Required Reading:** *Alpine Climbing* by Houstan and Cosley Ch 7, *Glacier Mountaineering: An Illustrated Guide to Glacier Travel* pages 110-116, see additional material

**Optional Reading:** *Glaciers! The Art and Science of Rescue* by Michael Strong, Eck Doerry, and Ryan Ojerio, *Glacier Travel & Crevasse Rescue: Reading Glaciers, Team Travel, Crevasse Rescue Techniques, Routefinding, Expedition Skills*, by Andy Selters, *Travel and Crevasse Rescue* by Andy Tyson and Mike Clelland

**Required Equipment:** Standard Glacier Gear

### Objectives:

- Practice rescue planning and execution in a leadership role
- Practice crevasse rescue techniques beyond the basic Z-Pulley
- Practice victim advocate skills

### Outline:

1. Glacier Rigging
  - Equipment- 2 Person
  - Rope Management
    - When - Deciding to rope up
    - How - 2 Person
    - Analyzing Route & Conditions
    - Rope Tension & Direction
2. Belays & Anchors
  - Snow
  - Ice
3. Haul Systems & Physics
  - Importance (and problems) of tension release knots
  - Ratchets - types
  - Choosing a haul system
    - Direct
    - Drop Loop-preferred for single or small teams
4. Potential Problems
  - Smaller diameter ropes
  - Cordellete diameters
  - Prusik diameter and materials
  - Rigging post fall
5. Overview of rescue scenarios to be practiced in the field
  - Answer questions
  - Mock set ups as needed
6. Field Trip Planning and Preparation

## Advanced Crevasse Rescue Field Trip

**Required Equipment:** Ten essential systems, Overnight gear,

Basic Minimum Setup:

10 carabiners (min 4 lockers- butterfly, tether, victim pulley)

2 pickets

2 anchor slings

2 spare slings

cordelette other cordage

1 pulley for drop loop (w/ locker)

chest prusik and foot loops

Add for significant weight differential:

2 hero loops

1-2 pulleys (prusik minding pulley for Z system)

**Outline:**

**Saturday:**

1. Hike to camp & set up
2. Practice 2 person rescue – Drop Loop
3. Practice rappelling to the victim and victim assistance

**Sunday:**

1. Practice middleman rescue
2. Break camp and hike out





### Two Man Rope Team Setup:

- 60 Meter rope highly recommended
- Approximately 12 meters in between climbers
- Retie foot loops so there is no slip knot in system (use bowline or figure 8). Then foot loops can be used for master loop in rescue scenario
- Clip butterfly to belay loop, then coil extra

### Rappel to victim for victim assistance (3 Person Rope Team):

- Pad the lip of rappel
- Tie stopper knot on end of rope and backup with catastrophe knot
- Rappeller takes C pulley with them
- Have an extra carabiner to facilitate set up
- Clip the rope directly to the victims harness
- Hauler needs to stack Z on C if rappeller stays with victim
- Do not assist with haul and stay lower than the victim (no crampons)
- Foot pulley for up righting victim only
- Wait to attach foot prusik until ready to ascend

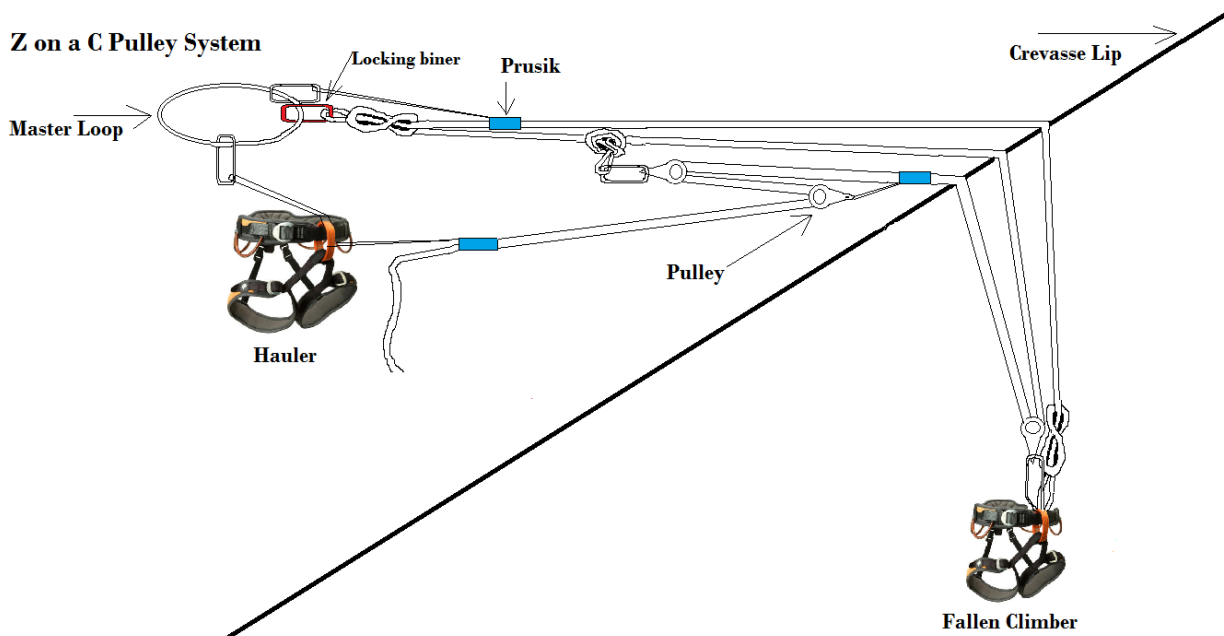
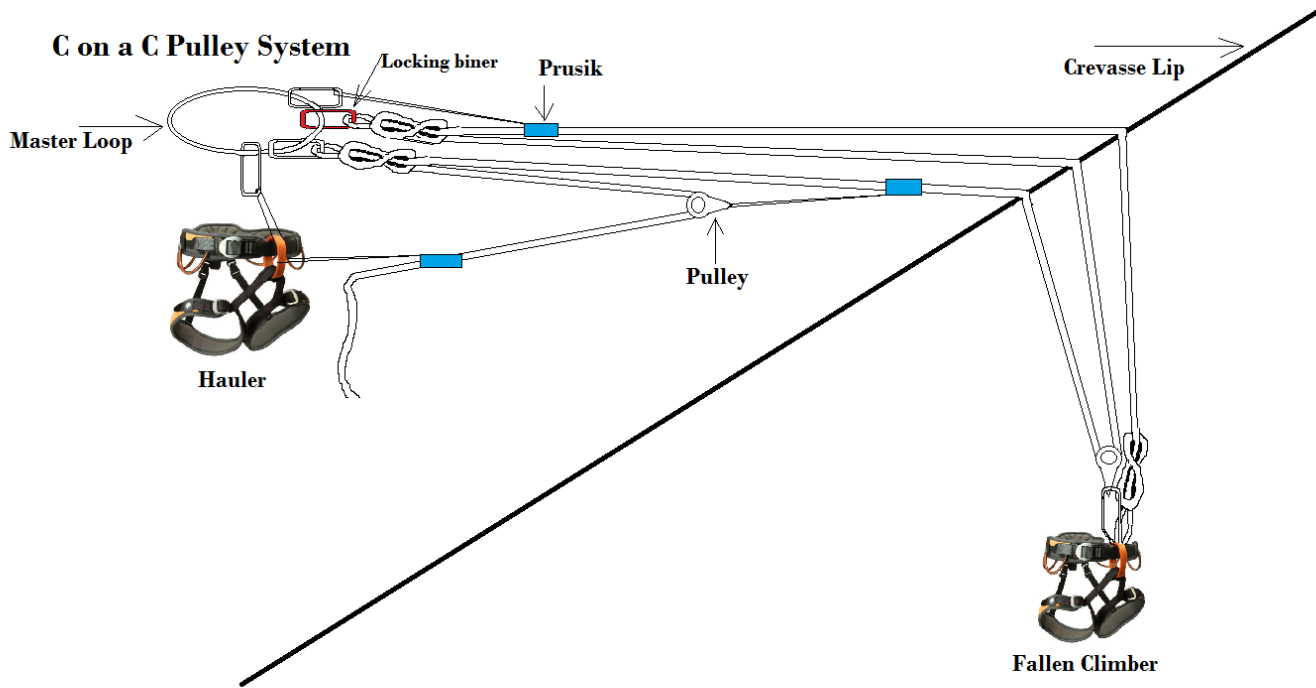
### Middle person falls in:

- Do not cross over crevasse unless absolutely safe.
- Communication is critical between end persons to determine who will perform rescue.
- When releasing from self arrest, try to stay low and “slide” out of self arrest position versus standing straight up.
- Non hauler stays in self arrest until anchor is set and the lip has been padded.
  - Then they set up their own anchor (single piece acceptable),
  - Then, subsequently set another anchor closer to the crevasse to free rope for being belayed across.
- Middle person should wait to self prusik until they are certain which side of the rope is the haul line.

# Advanced Crevasse Rescue

## C on C (Diagram Included):

- Use Basic Setup
- Create Anchor with Master Loop
- Attach Victim's line to Master Loop with prusik & back it up with a figure 8 on a bight
- Drop C loop to victim
- Tie a bight on the haul line and then attach to anchor.
- Attach pulley/prusik on haul line and feed excess line through pulley, then pull.
- To tend victim prusik hands free you can put a prusik on the haul line and clip it to your harness



## Water Ice Lecture

**Prerequisites:** Leading on Alpine Ice, Small Party Rock Rescue

**Required Reading:**

**Equipment:** Gear you have questions about

**Objectives:**

- Prepare for a weekend of climbing

## Water Ice Field Trip

**Required Equipment:** Ten essential systems, Overnight gear, Specific gear TBD at Pre-Trip Meeting

**Outline:** Go outside

**Saturday & Sunday:**

- Using the skills learned during Leading on Alpine Ice execute the planned climbs or the best suitable alternative, swapping leads when possible

# Graduation Application

## Bellingham Intermediate Mountaineering Course Graduation Application

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Year of course registration:  
\_\_\_\_\_

I wish to apply for graduation using:

- Using the current requirements
- Using the requirement when I started

Attached is a copy of a wilderness first aid card expiring:

### Intermediate Field Trips- Year attended

Avalanche Level 1: \_\_\_\_\_

Winter Mountaineering: \_\_\_\_\_

Small Party Rock Rescue: \_\_\_\_\_

Rock I: \_\_\_\_\_

Rock II: \_\_\_\_\_

Ice I & II: \_\_\_\_\_

Intermediate Crevasse Rescue: \_\_\_\_\_

Water Ice: \_\_\_\_\_

### Basic Course Instruction- Year attended

Avalanche: \_\_\_\_\_

Fundamentals: \_\_\_\_\_

Rock I: \_\_\_\_\_

Rock II: \_\_\_\_\_

Snow I: \_\_\_\_\_

Snow II: \_\_\_\_\_

Hard Snow: \_\_\_\_\_

Alpine Ice: \_\_\_\_\_(optional)

### Basic Course Leadership:

Trip & Year: \_\_\_\_\_



## Graduation Application

Successful Intermediate Climbs: Date, Route, Type, Party members-

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Successful Basic Climb Rope Leads: Date, Route, Type, Leaders-

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Other Leadership Activities:

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