2022 FOOTHILLS BASIC CLIMBING HANDBOOK

"There's a constant tension in climbing, and really all exploration, between pushing yourself into the unknown but trying not to push too far. The best any of us can do is to tread that line carefully." –Alex Honnold

Foothills Climbing Committee

Table of Contents

Table of Contents

Acknowledgement

Sincere thanks to the Everett Climbing Committee for sharing their Basic Climbing Handbook and Course Curriculum upon which this handbook and course are based. We can only imagine the hours that were invested in the original, and please know that your work will go on to serve many more new students.

2022 Course Schedule

DATE	TIME (*)	DESCRIPTION	LOCATION
December 7	1800 - 2030	Session 1: Course Kickoff & Gear	Redmond Vertical World
January 11	1800 - 2030	Session 2: Knots and Hitches	Redmond Vertical World
January 18	1800 - 2030	Session 3: Conditioning for Alpine Climbing	Online
January 22	0600 - 1200	Field Trip: Baseline Conditioner	Mt. Si
February 8	1800 - 2030	Session 4: Anchors and Belays	Redmond Vertical World
February 22	1800 - 2100	Session 5: Ascending the Rope & Fundamentals Review	Mountaineers SPC
February 27	0800 - 1500	Field Trip: Fundamentals	Mountaineers SPC
March 1	1800 - 2030	Session 6: Rappelling	Redmond Vertical World
March 8	1800 - 2030	Session 7: Escaping the Belay	Redmond Vertical World
March 15	1800 - 2030	Session 8: Rock Climbing	Redmond Vertical World
March 20	0800 - 1700	Field Trip: Rock 1	Mountaineers SPC
March 29	1800 - 2030	Mid Term	Mountaineers SPC
April 12	1800 - 2030	Session 9: Following on Multipitch Climbs	Redmond Vertical World
April 19	1800 - 2030	Session 10: Safety & Expedition Behavior	Online
April 30 - May 1	0700 - 1700	Field Trip: Rock 2	Leavenworth
May 10	1800 - 2030	Session 11: Avalanche Safety & Snow Travel	Online
May 14-15	0700 - 1700	Field Trip: Snow 1	Snoqualmie Pass
May 17	1800 - 2030	Session 12: Glacier Travel & Crevasse Rescue	Online
May 24	1800 - 2030	Session 13: Crevasse Rescue	TBD
June 11-12	0700 - 1700	Field Trip: Snow 2	Easton Glacier, Mt. Baker
June 14	TBD	Final Exam (Written and Practical)	Mountaineers SPC
June 21	TBD	Potluck / Instructor Appreciation, Guide to Further Activities	TBD

(*) Ending times are approximate target and not guaranteed.

Dates for Wilderness First Aid and Wilderness Navigation

Please search for First Aid or Wilderness Navigation Courses on the Mountaineers website. Dates/Registration TBD. The WFA and Navigation courses are offered separately from the Basic Climbing Course, but the dates are listed here for scheduling purposes.

Wilderness First Aid Course

WFA Class	Scenario Night
April 9-10	TBD
June 18-19	TBD
October 22-23	TBD

Wilderness Navigation Course

Registration	Maps & Compass[1]	GPS[2]	In-Person Workshops[3]	Field Trip[4]
11/1/2021 – 1/9/2022	1/31/2022 – 2/13/2022	2/14/2022 – 2/27/2022	3/2/2022 or 3/9/2022	3/19/2022 or 3/26/2022

1 "At your own pace" e-learning class (est. 7~8 hours required to complete)
2 "At your own pace" e-learning class (est. 4~6 hours required to complete)
3 In person; need to attend one 2.5-hour evening session
4 In person; need to attend one all-day field trip

Other Relevant Dates

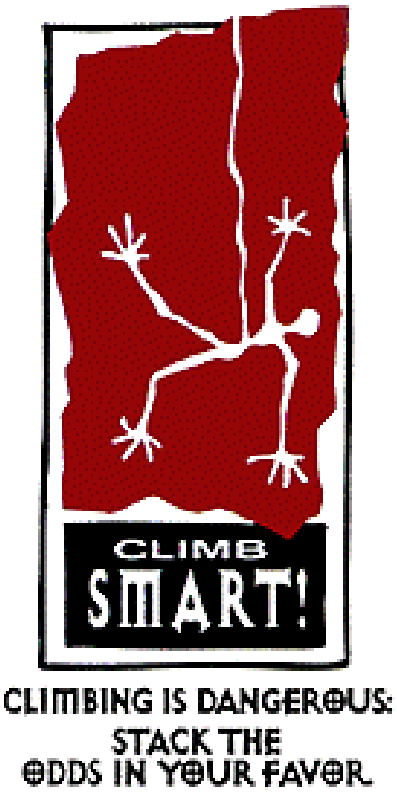
Date	Event
First Saturday in June	National Trails Day
Third weekend of September	Annual Climber and Scrambling-palooza
October 15	Cut-off date to submit Graduation Petition

Introduction

Welcome to the Foothills Mountaineers Basic Climbing Course! The Basic Course teaches the fundamentals of safe alpine climbing, including roped travel on rock, snow, and glacier. Students who complete the course will find that they have the knowledge, skills, and experience necessary to climb most of the mountains in the Pacific Northwest.

The Basic Course is very demanding and requires commitment on the part of those hoping to complete it. The class will push you physically, mentally, and emotionally. It will consume a large chunk of your time and energy. It may even cause some financial strains, but those who persevere will experience the rewards.

Good luck to all of you in the Foothills Mountaineers Basic Climbing Course. Have a great time and always remember:



Climb if you will, but remember that courage and strength are naught without prudence, and that a momentary negligence may destroy the happiness of a lifetime. Do nothing in haste; look well to each step; and from the beginning think what may be the end.

–Edward Whymper

Club Standards

In order to attain the Club's purposes – to explore, study, preserve and enjoy the natural beauty of Northwest America – all members of The Mountaineers shall subscribe to the following standards while participating in Club activities or while on Club premises:

- Exercise personal responsibility and conduct yourself in a manner that will not impair the safety of the party or prevent the collective participation and enjoyment of others.
- Respect private property.
- Abstain from drugs or medications, when their effect on ability and judgment would affect the safety of the party or impair the collective participation and enjoyment of others.
- Enter the outdoors as a visitor, leave behind no debris, environmental scars, or other indications of your visit that could reduce the enjoyment of those who follow.
- Pets, firearms, or any other items which impair the safety or enjoyment of others shall not be brought on Club activities or premises.
- Minimize environmental impact on the outdoors by using campfires only in properly designated areas and extinguishing them completely after use. Conduct human sanitation and washing away from water sources and carry out all solid waste.
- Obey specific regulations imposed by the Board of Trustees, Branches and Divisions of The Mountaineers, which are necessary to implement the above.

Please also reference the Mountaineers Board Policies on Harassment and Problem Behavior found in the appendix.

Members who deviate from this philosophy and from the specific Club regulations may be subject to the disciplinary procedures of the Club, including expulsion.

A Framework for Participation

The Basic Alpine Climbing Course will be successful and fun for students and instructors if you keep the following in mind:

- Remember that The Mountaineers is a club. It is not a for-profit guide service or climbing school. The Basic Course instructors and climb leaders are volunteers who spend many hours to make the program a success. You are a co-equal participant; thus, you are responsible for your safety and progress in the course.
- Commit now to attend all the lectures and field trips. The volunteer instructors do not have time to run special make-up sessions.
- Recognize that good physical fitness and conditioning are necessary for completing the climbs. Get in shape to ensure that you are not a liability to your climbing party.
- Recognize that significant mountain climbing knowledge, skill, and performance is required to pass the course.
- Have a positive attitude and seek help and information when needed. Don't be afraid to ask. The people working with the course enjoy helping you.
- Arrive at the lectures, field trips, and climbs on time!
- Be prepared. Read the assignments. Have the proper equipment and the knowledge to use it. Be organized!
- Be environmentally conscious and responsible. Be aware of the frailty of the alpine environment and protect it from harm.

Refund Policy

Refund minus $10 by 2nd Session (January 11, 2022). No refunds on or after this date.

Graduation Requirements

To be eligible for graduation from the Basic Alpine Climbing Course, you must meet the following graduation requirements:

- Attend all course lectures
- Attend and satisfactorily complete all course field trips.
- Pass the evaluations and final exam.
- Have a current certification for WFA (Wilderness First Aid).
- Complete the Wilderness Navigation course.
- Complete Low Impact Recreation (https://tinyurl.com/pj7ax5fv).
- Be a current member of The Mountaineers.
- Volunteer for at least one day of outdoor stewardship service that meets these requirements:
    - 8 hours / two (2) half-day Stewardship Trips by the Mountaineers)
    - Backcountry / alpine trail work (hosted by other organizations such as WTA may be accepted with a confirmation of hours worked from these organizations)
    - Any exceptions must be approved by the Basic Climbing Coordinator
- Successfully complete three (3) official Basic Climbs (one roped rock climb, one glacier climb and one of your choice (glacier, rock or alpine). NOTE: The third alpine climb may be substituted with two (2) T3+ scrambles. The third climb requirement is waived for scramble graduates).
- Petition the climbing committee, using the form at the end of this handbook, no later than October 15th.
- Approval of the Climbing Committee.

The benefits of being a Basic Graduate are numerous. Basic Graduates are:

- Eligible to participate on any Mountaineers Basic or Club climb for as long as they continue their membership in the club.
- Eligible to participate on any Mountaineers Alpine Scrambling, Winter Scrambling or Snowshoe trip (most winter trips will require AIARE/Avalanche Awareness Level 1 Certification).
- Eligible to participate with the Basic Climbing Class as instructors as long as you attend the Instructor Review once every 3 years. This reinforces and enhances skills while helping others.
- Eligible to advance their skills by taking the Leading on Rock course, Intermediate Climbing course, or a variety of climbing seminars.

Attendance Policy

Simply put – don't miss the lectures or the field trips. The Basic Alpine Climbing Course takes fundamental techniques and builds on them as the course goes along. Attendance at the lectures is mandatory in order to participate in the field trips. Similarly, attendance at each field trip is mandatory in order to participate in the next field trip.

Exams and Skills Testing

A person without the proper knowledge and understanding of climbing and proper safety techniques can be inherently dangerous. In order to continue to participate in the course, you must pass all exams.

During the course you will be evaluated at all field trips as well as by completing:

1. Midterm practical exam
2. Final written exam
3. Final practical exam

Conditioning

Conditioning is essential to safe and successful mountaineering. You should be prepared to carry a 30-pound daypack and, in one day, cover 10 miles, while gaining up to 4,000 feet – OR – carry a 45-pound overnight pack and, in one day, cover six miles, while gaining up to 3,000 feet. Inadequate conditioning will contribute to a loss of alertness, an inability to respond to the demands of the environment, and can slow down your climbing party enough to cause delays that jeopardize the safety of the party, or prevent your party from safely completing your objective. Make sure that you are in good shape so that you can enjoy the field trips and the climbs!

The following is one recommended approach to achieve the required conditioning.

- In the spring, take weekly short hikes with substantial elevation gain (like the Mt. Si trail). Nothing is more beneficial than wearing your mountaineering boots and carrying a load uphill.
- Begin a consistent program of aerobic conditioning – a minimum of 30-minute sessions, 3 times a week. This can be jogging, bicycling, aerobic dancing, etc. Interval training running stairs and hills is particularly beneficial.

Advice to the wise – START NOW!

Climbers' Directory

Here is a partial list of helpful phone numbers and websites

The Mountaineers – General Info	
Toll-free sign-up line	800.573.8484
Seattle business line	206.521.6001
Foothills Climbing Chair	peter.mountaineers@gmail.com

Foothills Basic Climbing Course Committee	
Peter Tran **858.699.0020**	Basic Course Coordinator peter.mountaineers@gmail.com

foothillsbasicclimbing@gmail.com is an option to send email to all three of the course committee members

Web Access	
The Mountaineers	www.mountaineers.org
WA forecasts	www.noaa.gov
WA DOT	www.wsdot.wa.gov
Avalanche Center	www.nwac.us

Basic Climbing Class Discussion Forum

Slack and email will be our primary method of documenting the course and giving updates to everyone. Instructors will be monitoring to provide feedback, advice, etc.

https://join.slack.com/t/mountaineers-eastside/shared_invite/zt-ywaulqz8-VSeOaBDQC5_WMvWiIu105w

Public Servants *Ranger Stations (RS) – Precinct (PSC) – Visitors Center (VC)*	
Mt. Rainier National Park	360.569.2211
North Cascades Nat'l Park	360.856.5700
Marblemount/Skagit	360.873.4500
Stehekin/Lake Chelan	360.682.2549
Olympic Nat'l Park	360.452.0330
Hoh RS	360.374.6925
Staircase RS	360.877.5569
Elwha RS	360.452.9191
Gifford Pinchot Nat'l Forest	360.891.5000
Trout Lake/Mt. Adams	509.395.3400
Mt. St. Helens VC	360.274.2100
Mt. Baker/Snoqualmie Natl Forest	425.775.9702
Darrington RS	800.627.0062
Glacier PSC	360.599.2714
North Bend RS	425.888.1421
Sedro Woolley RS	360.856.5700
Skykomish RS	360.377.2414
Snoqualmie Pass VC	425.434.6111
Okanogan Nat'l Forest	509.826.3275
Twisp RS	509.997.2131
Winthrop RS	509.996.4000
Tonasket RS	509.486.2186
Olympic Nat'l Forest	360.956.2409
Hood Canal District – N (Quilcene)	360.765.2200
Hood Canal District – S (Hoodsport)	360.877.5254
Pacific District – N (Forks)	360.374.6522
Pacific District – S (Quinault)	360.288.2525
Wenatchee Nat'l Forest	509.662.4335
Chelan RS	509.682.2576
Cle Elum RS	509.674.4411
Entiat RS	509.784.1511
Lake Wenatchee RS	509.763.3103
Leavenworth RS	509.548.6977
Naches RS	509.653.2205
Oregon	
ZigZag RS	503.622.3191
Mount Hood Natl. Forest	503.668.1700
British Columbia	
Squamish Forest Department (Garibaldi)	604.898.2100
Pacific NW Nat'l Parks/Forest Info	206.220.7450

Field Trips – General Information

The field trips offer students the opportunity to practice the techniques presented in the lectures and reading assignments with guidance from qualified instructors. The field trips are where you will learn to develop your climbing skills. It is your responsibility to come prepared for each field trip. Your instructors will not make you a climber; you must do this yourself. Review lecture and reading assignment material before each field trip. Practice the techniques beforehand on your own or with a fellow student. Not everyone comes into this class with the same experience and ability level; so don't get caught up trying to compete against each other. Use the time to practice, learn, improve, help, and make friends. To be successful in this course it is highly encouraged to practice the skills and techniques as much as you can outside of class and fieldtrips. If you limit yourself to only practicing during class time you won't be familiar with these essential skills as you need to be. Field Trip locations are subject to change depending on weather/snow conditions.

- **Carpool.** While the Mountaineers does not officially facilitate carpools as a part of our programs, carpools are normally encouraged to limit our impact as much as possible. However, if you do decide to carpool during the COVID-19 pandemic, we encourage individuals to follow the current CDC recommendations for transportation. Also, please be courteous to your driving partners and compensate the driver with appropriate gas money.
- **Field trips happen rain or shine.** We do not cancel field trips because of bad weather. Chances are there will be at least one field trip in "challenging" weather conditions. Pack your raingear and keep a positive attitude.
- **Check in and be ready to go on time.** Arrive early enough to park and make whatever preparations are necessary so you can be ready to begin at the starting time. Field trips have different starting times, but the rule of thumb is: PLAN TO ARRIVE AT LEAST 30 MINUTES BEFORE THE START TIME, SO THAT YOU ARE READY TO ROLL AT THE START TIME.
- **Be prepared and bring all the required gear.** The required equipment for each field trip will be listed under each field trip heading on the following pages. Study the field trip material, and when possible, practice the skills learned in class.
- **Be prepared for a full day.** Each field trip is long and full of activities, get sufficient sleep the night before. Note that you may not get back in time for any personal activities in the evening.
- **Organization and patience.** Even though our class size is relatively small, it is still very challenging at times to conduct a field trip and coordinate/plan activities for all students with differing level of skills and instructors. Many times, you will be asked to hurry up and wait. Please be cooperative and understanding. If you are assigned to work with a group, STAY WITH YOUR GROUP.
- **Students only please.** Mountaineer field trips are to be attended by course students and approved instructors ONLY. No spouses, significant others, children, or friends. LEAVE PETS AT HOME.
- **Couples and close friends.** We require that couples and close friends work in separate groups on the field trips. Experience has shown that each person learns more this way and develops their skills better because they can't rely on the strengths and weaknesses of the other. Couples and close friends may camp together at the Snow 1, Snow 2, and Rock 2 field trip, but must work separately on other activities.
- **Field trip books.** At the start of each field trip, you will sign in and be given your field trip score sheet. Instructors use the score sheet to grade your skills and make comments/suggestions. IT IS YOUR RESPONSIBILITY to make sure that an instructor grades you on every skill. YOU MUST TURN IN YOUR SHEET after each field trip. Keep the score sheet dry via a Ziplock bag and bring a pen.
- **Follow the techniques we teach.** The methods we teach are safe and accepted mountaineering practices. There may be more than one good way to do some of the things we teach, but in order to promote consistency and safety; you need to stick with what is taught in class. If you have a question on any method, don't hesitate to ask an instructor!
- **Drugs.** Not allowed during ANY Mountaineer field trip. While marijuana is legal in the state of Washington it is still a Class I controlled substance federally. That means that it is still illegal on National Forest Land and Nation Parks land, which is where we hold our field trips.
- **Care for the field trip site.** When our large group uses an area for a field trip, we cause a lot of impact on the physical environment. Each and every person must take responsibility for minimizing this impact. WE TAKE THIS VERY SERIOUSLY! The use of the field trip area is a privilege, which we don't want to abuse. Pack out your litter, stay off fragile vegetation, protect the water supply, and dispose of human waste properly.

- **Field trip departure.** No one should leave the base camp area or parking area at the conclusion of the field trip until the field trip leader gives the go ahead. You will need to be patient if you finish early. Often it takes an hour or more from the time the first group finishes until the last group is done. Our best advice is to keep your personal schedule free, if at all possible, for the time period immediately following conclusion of trips. Climbing is unpredictable and there are times when your group will run late.
- **Please remember that your instructors and leaders are all volunteers.** Many will be Intermediate Students or Leading on Rock students developing their own mountaineering skills while teaching you. They all have something to teach you and deserve your attention and courtesy.
- **Reach out if you need help.** If you find yourself needing additional help or have questions about skills or techniques outside of class, please don't hesitate reach out to another instructor or via Slack. There are resources available.
- **Positive attitude.** Last, but not least, have a great attitude. Don't hesitate to ask questions or help out a fellow classmate. History shows that the field trips are always rated the best part of the class.
- **LNT.** Leave no trace and always "pack it, pack it out". For more information see https://lnt.org/.
- Students will be expected to self-evaluate before being scored by an instructor. Students should pay attention, demonstrate good self-awareness and openly interact with their instructor for best effect.

The field trips are organized as follows:

- **Conditioning:** A ½ day field trip at Mount Si. Topics covered are the 10 Essentials and hiking with a heavy pack.
- **Fundamentals:** A one-day field trip held at The Mountaineers Program Center in Seattle. Topics covered are knots, belaying, and prusiking.
- **Rock 1:** A one-day field trip held at The Mountaineers Program Center in Seattle. Topics covered are basic climbing techniques, belaying, rappel techniques and emergency tie-off.
- **Rock 2:** A weekend field trip held at Icicle Creek Canyon near Leavenworth. All skills previously learned will be heavily applied on this field trip.
- **Snow 1:** A weekend trip held at Snoqualmie Pass. Camping and travel on snow, snow anchors, ascending/descending slopes, crampon use, quick belay methods and using an ice axe for self-belay and self-arrest will be covered. Self-arrest practice will be extensive and rigorous. Prepare for the cold and expect to get wet. Snow caves will be built, if conditions permit.
- **Snow 2:** A weekend trip held on the Easton Glacier of Mt. Baker. Crevasse rescue, glacier travel and all skills previously learned will be covered on this field trip.

Practice Sessions

Practicing all skills is essential to developing your mountaineering skills. While we have designated class practices, many students will find they need additional practice sessions to master the skills. As you go through the classes, feel free to set up your own practice groups or request additional help from the instructors

Reading Assignments

Sessions	Mountaineering: The Freedom of the Hills - 9th Edition *
Session 1 Course Kickoff & Gear, 10 Essential Systems	Chapters 1-3 pp 14-78
Session 2 Knots and Hitches	Chapter 9 pp 150-171 Chapter 18 pp 394 -395 & 408-411 (Texas Prusiks)
Session 3 **Conditioning for Alpine Climbing**	**Chapter 4 pp 79-89**
Field Trip – Baseline Conditioner	All Previous Assignments
Session 4 Anchors and Belays	Chapter 10 pp 179-199

Session 5 Ascending the Rope & Fundamentals Review	Chapter 18 pp 199-201 All Previous Assignment
Field Trip Fundamentals	All Previous Assignments
Session 6 Rappelling	Chapter 11 pp 202-223
Session 7 Escaping the Belay	Chapter 10 pp 199-201
Session 8 Rock Climbing	Chapter 12 pp 224-251 Chapters 6-8 pp 128-148
Field Trip - Rock 1	Review Chapters 6, 7, 8, 10, 11, and 12
Mid Term	**All previous Assignments**
Session 9 Following on Multi Pitch Climbs	Chapter 12 pp 224-251 Chapters 6-8 pp 128-148
Session 10 **Safety & Expedition Behavior**	**Accidents in North American Climbing 2019 – Rappel Anchor Failure, Mt Rainier Dewey Peak**
Field Trip - Rock 2	Review Chapters 6, 7, 8, 9, 10, 11 and 12
Session 11 Avalanche Safety & Snow Travel	Chapter 16 pp 330-365 Chapter 17 pp 366-389 Chapter 27 pp 548-557 Chapter 28 pp 558-568 Review Chapter 3 pp 58-63 Chapter 19 pp 427-435
Field Trip - Snow 1	Review Chapters 3, 16, 17
Session 12 Glacier Travel and Crevasse Rescue	Chapter 18 pp 390-418
Session 13 Crevasse Rescue	Review Chapter 18 pp 390-418
Field Trip - Snow 2	Review Chapter 18
Final Exam	Review all previous assignments

***** **Course textbook:** Mountaineering: The Freedom of the Hills, 9th Edition will be abbreviated as **FotH** throughout this manual

Equipment Matrix

Ten Essential Systems	Cond	Fund	Rock 1	Rock 2	Snow 1	Snow 2
Navigation	✓	✓	✓	✓	✓	✓
Sun protection	✓	✓	✓	✓	✓	✓
Illumination	✓	✓	✓	✓	✓	✓
Insulation	✓	✓	✓	✓	✓	✓
First Aid kit	✓	✓	✓	✓	✓	✓
Fire started	✓	✓	✓	✓	✓	✓
Repair kit and tools	✓	✓	✓	✓	✓	✓
Nutrition	✓	✓	✓	✓	✓	✓
Hydration	✓	✓	✓	✓	✓	✓
Emergency shelter	✓	✓	✓	✓	✓	✓

Clothing (Wool or Synthetic)	Cond	Fund	Rock 1	Rock 2	Snow 1	Snow 2
Mountaineering Boots	✓	✓	✓	✓	✓	✓
Socks & Underwear	✓	✓	✓	✓	✓	✓
Wicking base layer (shirt)	✓	✓	✓	✓	✓	✓
Long Sleeve Shirt/T-Shirt	✓	✓	✓	✓	✓	✓
Insulating Layer (shirt)	✓	✓	✓	✓	✓	✓
Second Insulating Layer (shirt)	✓	✓	✓	✓	✓	✓
Rain Jacket	✓	✓	✓	✓	✓	✓
Wicking base layer (pants)	✓	✓	✓	✓	✓	✓
Pants/Shorts	✓	✓	✓	✓	✓	✓
Insulating Layer (pants)	✓	✓	✓	✓	✓	✓
Rain Pants	✓	✓	✓	✓	✓	✓
Warm cap & scarf or balaclava	✓	✓	✓	✓	✓	✓
Hat/bandanna (for sun/heat)	✓	✓	✓	✓	✓	✓
Gloves/mittens/liners (spares?)	✓	✓	✓	✓	✓	✓
Leather gloves for belaying		✓	✓	✓		
Gaiters, long	✓				✓	✓

Camping Gear/Food	Cond	Fund	Rock 1	Rock 2	Snow 1	Snow 2
Sleeping pad				✓	✓	✓
Sleeping bag				✓	✓	✓
Eating utensils/plate/bowl/cup				✓	✓	✓
Lightweight camp stove & fuel				✓	✓	✓
Cooking pot				✓	✓	✓
Snack foods	✓	✓	✓	✓	✓	✓
Breakfast, lunch, & dinner food				✓	✓	✓
Tent/bivy/tarp				✓	✓	✓

Climbing Gear	Cond	Fund	Rock 1	Rock 2	Snow 1	Snow 2
6 non-locking carabiners (no mini biners)		✓	✓	✓	✓	✓
4 locking carabiners (no mini biners)		✓	✓	✓	✓	✓
1 large tri-locking carabiner, pear or D shaped		✓	✓	✓	✓	✓
Harness with belay loop (UIAA Certified)		✓	✓	✓	✓	✓
Hero loop		✓	✓	✓	✓	✓
Sterling Rope Hollow Block 13.5"			✓	✓	✓	✓
Texas Prusiks (seat & foot) try to buy these in different colors, see page 22 for sizing		✓			✓	✓

Personal safety anchor – (can use Petzl Connect, Purcell Prusik, or sewn nylon double runner [BD 18mm/120cm])		✓	✓	✓	✓	✓
(2) Dyneema or nylon double runners (or (2) 96" lengths of nylon webbing, 9/16" or 1")		✓	✓	✓	✓	✓
(1) Sewn nylon double runner		✓	✓	✓		
Cordelette (7mm nylon ~20 feet)		✓	✓	✓	✓	✓
10' of 1" nylon webbing for Chest harness		✓			✓	✓
Climbing helmet (UIAA-certified)		✓	✓	✓	✓	✓
Belay/rappel device (Black Diamond ATC or Petzl Verso)		✓	✓	✓	✓	✓
Ice Axe with leash					✓	✓
Crampons with anti-balling plates					✓	✓
Petzl Mini Prusik Minding Pulley or SMC Crx Crevasse Rescue Pulley					✓	✓
Chock pick aka nut tool			✓	✓		
Picket (24")					✓	✓

Other Essentials	Cond	Fund	Rock 1	Rock 2	Snow 1	Snow 2
Day pack		✓	✓	✓		
Overnight pack	✓				✓	✓
Toilet paper and blue bags	✓			✓	✓	✓
Toiletries (tooth brush, etc)						
Insulated sit pad	✓	✓	✓	✓	✓	✓
Plastic bag & ties/pack cover	✓	✓	✓	✓	✓	✓
Insect Repellant/Net						
Emergency Contact Info						

Equipment Not Required but Potentially Beneficial	
Cell Phone/Radio	Rock Shoes/Chalk/Tape
Camera	Rock/Snow Protection
Water Treatment	Snow Shoes
Trekking Poles	Avalanche Transceiver/Probe
Altimeter or GPS	Wands
Rope	Personal Locator Beacon
Microspikes	Collapsible Metal Shovel

COVID Protocol

To align with the King County vaccine mandate, The Mountaineers is requiring everyone ages 12 and older to be fully vaccinated against COVID-19 to participate in indoor programs. As our climbing course will have a number of indoor class sessions, all participants (instructors and students) must be fully vaccinated by the first course session and follow

- Proof of full vaccination in accordance with the current CDC protocol is required.
- Masks should be worn during indoor or outdoors activities if official guidelines applicable to the location require it at the time of the activity
- Engage in physical distancing (6 ft where appropriate (i.e. indoor classroom)
- Stay home if sick
- Avoid others who are sick
- Wash hands frequently with soap/water or hand sanitizer
- Cover coughs and sneezes
- Avoid touching face with unwashed hands

The Mountaineers full COVID-19 protocol can be read here: https://www.mountaineers.org/membership/the-mountaineers-covid-19-response

In addition to these requirements, Foothills Climbing asks that students observe the following when possible:

- Wear a mask when in close proximity with others during instruction, belaying, etc
- If carpooling, follow the current CDC Guideline for Transportation Safety

Session 1: Introduction, Overview, Equipment & Ten Essential Systems

Class Schedule	
5:50	Check-in
6:00	Welcome, course overview and expectations
6:20	Commentary on commitment necessary to complete this course
6:30	Ten Essential Systems & Climbing Code
6:40	Equipment/clothing systems (includes 10-minute break)
8:00	Housekeeping items
8:05	Video Lecture
8:15	Class dismissed
8:30	All students and instructors out of facility

Required Reading: See "Reading Assignments" – page 11
Required Practice: None
Equipment: None

Purpose and Objectives:
This session will introduce students to the Basic Climbing Course. The course introduction is intended to provide an overview of the class, what our approach to teaching the course will be, and to clearly set expectations around what is required to be successful. The gear and equipment overview will introduce the Ten Essential Systems and provide candid insights on appropriate gear and equipment for the course.

Topics:

Course overview and expectations

Equipment and clothing

Climbing gear:
1. Harness (must have belay loop)
2. Helmet
3. Carabiner
   - 3.1. Keyless / keyed
   - 3.2. Solid / wire gate
   - 3.3. Straight / bent gate
   - 3.4. Locking / non-locking
4. Belay carabiner
5. Pulley
6. Belay/rappel device (strongly recommend device with friction teeth)
7. Cordelette, webbing and nylon cord (1" or 9/16" webbing and 6mm nylon cord)
8. Personal anchor
   - 8.1. Commercially manufactured, 9/16” or 1” webbing or Purcell prusik
9. Ice axe
10. Footwear
11. Crampons
12. Packs
13. Sleep systems
14. Tent/shelter/bivy sack

Clothing: (find what works for you; no two people like all the same gear)
1. Fabrics
   - 1.1. Cotton

   1.2. Polyester
   1.3. Silk
   1.4. Wool
   1.5. Blended fabrics
   1.6. Tech fabrics
2. Underwear & socks
3. Base layers
4. Shorts & t-shirts
5. Pants & long-sleeve shirts
6. Insulating pants, shirts & jackets
7. Soft-shell jackets & pants
8. Rain jackets & pants
   8.1. Adequate venting/zips
   8.2. Hoods sized for helmet
9. Hats, scarves and balaclavas
10. Gloves & mittens
11. Leather gloves for belaying (do not need to be climbing-specific gloves)
12. Gaiters
13. Sunglasses & goggles

Ten Essential Systems

- **Navigation**: Map, altimeter, compass, [GPS device], [PLB or satellite communicators], [extra batteries or battery pack]
- **Headlamp**: Plus extra batteries
- **Sun protection**: Sunglasses, sun-protective clothes, and sunscreen
- **First aid**: Including foot care and insect repellent (if required)
- **Knife**: Plus repair kit
- **Fire**: Matches, lighter and tinder, or stove as appropriate
- **Shelter**: Carried at all times (can be light emergency bivy)
- **Extra food**: Beyond minimum expectation
- **Extra water**: Beyond minimum expectation, or the means to purify
- **Extra clothes**: Beyond minimum expectation

Summary and Expectations:

For the most part, this lecture is informational. It provides the framework of what you can look forward to, what our expectations are, and an overview of appropriate gear to select. Students are encouraged to frequently ask different instructors what gear or clothing they use to help determine what will be most effective for the student. Asking gear or clothing questions on the discussion board usually results in a multitude of perspectives, opinions and advice. Students will be responsible for knowing the Ten Essential Systems. Hint: this is a guaranteed item that will be covered on the Final Exam.

Equipment

You are responsible for providing your own personal equipment. Hopefully, you already own some of the necessary clothing, camping and hiking related items. Many items (e.g. helmet, crampons and packs) can be rented through stores like REI. Some equipment such as tents, stoves, shovels and water filters can be shared with other climbers. As a Basic Student, you are not expected to provide a rope or rock protection. The Club will provide all ropes for field trips. The Club, climb leaders and/or rope leaders will provide the ropes for your climbs.

The required equipment will vary with the type of climb, the length of trip, the season and variable factors like weather. The equipment recommendations in the equipment matrix in the front of this handbook are generally conservative. It is based on the need to be fully prepared for severe weather, emergencies, accidents or unplanned overnight bivouacs. It is up to you to develop a sense of what is sufficient and what can be pared down or left behind given circumstances. This is a skill that cannot be taught; it will come with experience. Whatever the case, the foundation of your packing list should be based on the Ten Essential Systems.

Ten Essential Systems		
N	Navigation	Map, compass, route description, topo
S	Sun Protection	Sunglasses, sunscreen, hat
I	Insulation	Adequate and appropriate clothing
I	Illumination	Headlamp and extra batteries
F	First Aid Supplies	First aid kit with relevant supplies
F	Fire	Matches, lighter, fire starter
R	Repair Kit and Tools	Knife, duct tape, spare parts
N	Nutrition	Ready-to-eat food, extra food
H	Hydration	Water, iodine, filter
E	Emergency Shelter	Tarp, bivy sack, ingenuity

Note: with the release of Freedom of the Hills Seventh Edition, the traditional "Ten Essentials", with its emphasis on specific items, have been replaced with the broader and more conceptual "Ten Essential Systems". The list above should not be thought of as a definitive list. It is intended to be a framework of how to approach your equipment needs with a few examples provided.

Clothing and Equipment Costs

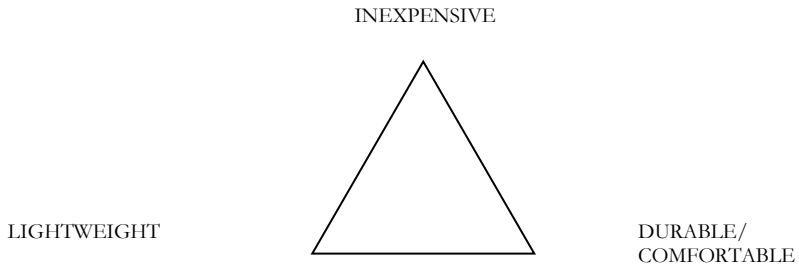
Clothing and equipment costs will vary greatly depending upon what you already own, your tastes for new or used equipment, preferences for the high or low end, and your tenacity for shopping. If you currently engage in other outdoor activities such as alpine scrambling, backpacking or cross-country skiing, you may already have much of the necessary clothing, footwear and camping equipment. In that case, most of what you will buy will be limited to the technical climbing equipment - harness, belay device, helmet, ice axe, carabiners, runners, etc.

The following are rough cost estimates to help set realistic expectations for your expenditures on this course. Remember, no sport of passion comes cheaply; climbing is not an exception to that rule. Your cash outlay can be reduced significantly by using items you already own, borrowing, renting, and shopping shrewdly.

Minimum	**$500**	**Currently own most of the necessary clothing, backpacking gear and footwear. Only need to purchase technical climbing gear and a few supplemental items.**
Average	$1500	Must purchase climbing equipment in addition to some backpacking gear (for example, better boots, a backpack, more suitable clothing, or outerwear.)
High	$2500+	Must purchase climbing equipment and most backpacking gear and clothing. Or have a good start on the necessary equipment but feel the need to purchase newer/lighter/better/more equipment at a level that makes the rest of us envious.

Your gear is YOUR GEAR. Mark it with tape or paint.

BUYER'S REMORSE TRIANGLE



Pick two of the three. You can't have all three!

Tips for selecting equipment

Footwear

DO NOT BUY PLASTIC MOUNTAINEERING BOOTS FOR THIS CLASS. Rock shoes are optional and can be used at the Rock 2 field trip and optionally can be used on experience climbs. A good quality pair of full grain leather mountaineering boots will be the most practical and versatile footwear for this class. Synthetic materials in "mountaineering" boots are perfectly acceptable, provided that the boots are waterproof and durable. Whatever the case, your boots should be stiff enough to kick steps in hard snow, offer an aggressive tread for secure travel in mud and snow, and be stout enough in the uppers to protect your feet and ankles from loose rock and talus. Boots must contain a metal shank and include crampon compatibility. Lightweight hiking boots are not suitable for mountaineering. Ask your boot fitter for suggestions on an all-around alpine mountaineering boot for the Cascades.

Beyond the items above, fit is the most important factor. Spend the time to shop around at more than one shop. Not all boots fit alike, and not all feet will fit a given boot. Budget $200 - $400 for boots; you will have many options in this price range. Used footwear found at gear swaps or stores such as Wonderland Gear Exchange is not a bad strategy for your first year. Just make sure the boot fits comfortably.

Compass

Before you buy a compass, read pages 91-99 of FotH

A compass, for wilderness travel use, should have these features:

- Transparent, rectangular base plate
- Direction-of-travel line or arrow parallel to the edges of the base plate
- Index line or mark on the base plate, where bearings are read
- Rotating dial with transparent housing
- Angle graduations of two-degree increments, from 0 to 360 in a clockwise direction
- Orienting arrow and parallel meridian lines marked on the transparent rotating housing
- Liquid-damped magnetic needle
- Adjustable declination arrow for correcting magnetic offsets
- Sighting mirror (highly advisable due to precision required on Field Trips)

Optional feature: clinometers are useful but not necessary.

Climbing Helmets

A hard hat to protect a climber's head is a compromise between critical and desirable features. When selecting a helmet, compare the following characteristics:

- Protection from impact on top of the head (rock fall)
- Protection to the side of head (tumbling fall or pendulum)
- Upward visibility not impeded by brim
- Retention of helmet on head (tumbling fall)

- Ventilation
- Comfortable, and wearable with or without a warm hat
- Ease of adjustment

Suitable helmets include those manufactured by Black Diamond, C.A.M.P., Petzl, and Mammut. Other companies may produce acceptable helmets; the critical characteristic of an acceptable helmet is a UIAA and/or CE approval for use as a climbing helmet. Bicycle, kayak, snow sport or other types of helmets are not acceptable.

Belay Gloves

Gloves used for belaying and rappelling should be comfortable and well fitting. A good pair of leather garden or work gloves is perfectly acceptable and is probably more affordable than some climbing specific belay gloves. Some climbers prefer fingerless gloves while others prefer full finger gloves.

Belay/Rappel Devices

Although there are many types of manufactured belay devices, to facilitate the safe and effective instruction in the use of a belay/rappel device, you should purchase a tube type device like the Black Diamond ATC, Trango Pyramid, or Petzl Verso. Improper use of a belay device can result in injury and death; you must make a special effort to educate yourself in the proper and safe use of these devices. Also, consider a belay device with high friction grooves like the ATC-XP, especially if you weigh significantly less than your partner.

If you intend to continue into Leading on Trad or Intermediate Alpine Climbing Courses, you may want to purchase a "guide style" device like the Black Diamond ATC guide or Petzl Reverso.

Note: You will not be allowed to use the Edelrid MegaJul, Edelrid, GigaJul, Petzl Grigri, and other assistant braking devices for the course except in very specific circumstances, which will be discussed prior to that activity taking place

Climbing Harness

The harness you choose will need to be versatile for both rock and alpine climbing. That said, not all harnesses do everything well and there are trade-offs. The most comfortable harnesses are 'big wall' harnesses. However, they tend to be expensive, bulky & heavy. A big wall harness is not the best choice for alpine climbing where size and weight are important factors. The other extreme would be something like a no-frills glacier harness. These are not padded, but are very lightweight and compact. Chances are you will use your harness for rock climbing at local crags and/or gyms as well, so look for something in the middle of the range. MAKE SURE THAT YOUR HARNESS HAS A BELAY LOOP.

Most importantly, make sure your harness fits. You should be able to sit comfortably suspended in your harness without having to exert yourself to sit upright. If it's an effort to sit upright, the rise in your harness may be too short. In general, women's specific models will offer a longer seat rise and fuller leg loops. If you end up hanging mostly by your waist belt and the waist belt runs into your rib cage, the seat rise may be too long. If you have problems, Metolius offers a harness with an adjustable rise. This is on the high end of the price scale, but the comfort is well worth the money. Make sure that your harness distributes weight between your leg loops and your waist belt with the majority of weight being supported by your thighs. Beyond this, look for any uncomfortable rub spots, pinches, and binds.

As far as features, look for adjustable leg loops. You'll wear a variety of clothing from shorts in warm weather to multiple layers on a glacier. Women may want to look for 'droppable' leg loops to make pit stops more convenient.

Personal Safety Anchors

A personal safety anchor ("PA") is used to momentarily anchor oneself when exposed, but not on belay. This typically occurs when preparing to rappel. The personal anchor can be as simple as a 9/16" (climbing spec) or 1" (military or climbing spec) double runner girth hitched through the seat harness. Commercially manufactured personal anchors are available from retail stores. We recommend the Metolius PAS, Petzl Connect, or a sewn Black Diamond nylon18mm/120cm runner. Also, you can make a Purcell Prusik out of cord. The Purcell Prusik is the safest option as it is not a completely static attachment to the anchor.

New vs. Used

Some things are perfectly fine to pick up used. They may even be broken in and have some of the burrs worked out of them. They will certainly be cheaper up front, though not necessarily cheaper in the long run. Good used items include boots, packs, clothing, and most camping gear such as tents and stoves. Things to avoid buying used are things that bear weight and are safety rated. Bad used items include harnesses, helmets, carabiners, ropes and webbing.

Packing Light

Buying gear and deciding what to bring is an art that one continues to develop. There is always going to be a balance between weight, cost, comfort and durability. A light pack is your friend and a heavy pack is a beast of burden. A pound here and there will be very noticeable when you are hauling it up 3000ft to a base camp. Investing in light weight equipment up front will be more expensive but well worth it in the long run and after a few climbs you will learn what items you use and which items you can leave at home next time. It is all about trade-offs, and it is up to you to determine which of these you want to sacrifice: lightweight, durable/comfortable or inexpensive. Try to shoot for a 40lb pack weight for an overnight glacier climb.

Equipment Lifespan

Over time, rocks, dirt and ultraviolet radiation from the sun will degrade the strength of all climbing equipment. Each piece of equipment should come with an information booklet that lists a maximum lifespan. Most of this information will guide you to look for visible signs of wear, however not all damage is visible. If metal equipment is dropped, banged on rocks, or if nylon or plastic is exposed to Ultraviolet radiation, internal weaknesses will develop. Because of this, manufacturers generally list a maximum lifespan for non-metallic items. Obviously, you should frequently inspect your equipment for visible blemishes, however you should discard equipment regardless of how good it looks when the end of the lifespan is reached. Writing the purchase date on each piece of equipment or on the manufacturer's literature book is highly recommended.

Optional Items

Depending on the trip, this stuff can be considered essential.

- Shorts and/or hot weather shirt
- Camera/phone
- Bandana (sun / sweat protection)
- Insect repellent
- Footwear for camp
- Dry clothes in car for the trip home
- Snowshoes
- Purification tablets or water filter
- Wands (for marking routes)
- Collapsible trekking poles
- Altimeter
- Nylon accessory cord
- Lightweight binoculars

Items provided by the Climbing Committee

- Climbing ropes and practice ropes
- Snow saws

Items not used or taught in the Basic Climbing Course

- Aid climbing gear (etriers, pitons, etc.)
- Ice screws
- Ice tools
- Ascenders (jumars, grigris, etc.)
- Avalanche rescue beacons

Equipment and Clothing Retailers			
Feathered Friends	206.292.6292	Seattle	featheredfriends.com
Outdoor Research	888.467.4327	Seattle	outdoorresearch.com
Pro Mountain Sports	206.522.1627	Seattle	promountainsports.com
REI (multiple sites)	425.774.1300	Lynnwood	rei.com
Ascent Outdoors	206.545.8810	Seattle	ascentoutdoors.com
Ed's Surplus & Marine	425-778-1441	Lynwood	edssurplus.com
Play it Again (multiple sites)	425-670-1184	Lynwood	playitagainsports.com
Eddie Bauer (First Ascent)	40% discount	Multi-Sites	eddiebauer.com
Mountain Hardware	15% discount	Seattle	mountainhardware.com
Wonderland Gear Exchange	Consignment Store	Seattle	wonderlandgearexchange.com
Pro Ski & Mountain Service	425-888-6397	North Bend	proskiservice.com
Backcountry.com	20-30% discount		backcountry.com
ExpertVoice.com	Up to 70% discount		expertvoice.com

Equipment/Clothing Repair			
Dave Page, Cobbler	206.632.8686	Seattle	davepagecobbler.com
Rainy Pass Repairs	206.523.8135	Seattle	rainypass.com
REI	Various	Various	rei.com

Maps			
Mountaineers Bookstore	206.521.6002	Seattle	mountaineers.com
Metsker Maps	206.623.8747	Seattle	metskers.com
Trail/topo map downloads			Alltrails.com
Caltopo (free US topo maps)			caltopo.com
Gaia			Gaiagps.com

Session 2: Knots and Prusiks

Class Schedule	
5:50	Check in
6:00	Introduction and announcements
6:05	Climbers Code
6:25	Coils and prusiking demo
6:35	Knots small group practice / prusiking practice
8:15	Class dismissed
8:30	All students and instructors out of facility

Required Reading: See "Reading Assignments" – page 11

Required Practice: All knots listed below. Construct Texas Prusiks.

Equipment:
Harness, practice rope, (1) double runner, chest harness, hero loop, nylon cord for (or completed set of) Texas Prusik, belay size locking carabiner, locking carabiner, non-locking carabiner. Reference the Equipment Matrix in this Handbook for additional information on equipment.

Purpose and Objectives:
This lecture introduces the Climbers Code and collection of knots that all students are expected to remember and master in the Basic Course. The types of materials (rope, webbing and nylon cord) commonly used to tie the knots and their general properties are also covered. The lecture plus the text descriptions in Mountaineering: The Freedom of the Hills are considered an introduction; extensive practice on the students' own time is expected in order to master these skills. After this lecture and throughout this course, all students will need to recognize the correct usage for these knots and develop strong proficiency tying them. During the lecture, students have an opportunity to construct their own Texas Prusiks and test them as time allows.

Students are highly encouraged to prepare their Texas prusiks, hero loops and autoblock before coming to class in order to preserve the class time for practice and interaction with the instructors.

Topics

Climbers Code

- Leave the trip itinerary with a responsible person.
- Carry the necessary clothing, food, and equipment.
- A climbing party of three is the minimum, unless adequate prearranged support is available.
- On glaciers, a minimum of two rope teams is recommended.
- Rope up on all exposed places and for all glacier travel. Anchor all belays.
- Keep the party together and obey the leader or majority rule.
- Never climb beyond your ability and knowledge.
- Never let judgment be overruled by desire when choosing the route or deciding whether to turn back.
- Follow the precepts of sound mountaineering as set forth in books of recognized merit.
- Behave at all times in a manner that reflects favorably upon mountaineering, including adherence to Leave No Trace principles.

Knots

Tying the knots and understanding their usage. Strengths listed are guidelines; they assume well-dressed knots in 10mil climbing rope. A well dressed knot has each strand from the knot pulled tight with the appropriate tail length or backup knot in place.

Overhand knot

- Tied flat with webbing as in a water knot
- Tied with webbing to take up slack in a sling
- Tied with climbing rope as a backup to another knot

Water knot

- Can be done with either webbing or rope, webbing is used in this course
- Used to tie two ends of webbing together to form a sling
- 4-way tug or foot tightening
- Rolling in palms to untie
- Used in construction of anchors
- Tails should be at least 4"

Girth hitch

- Can be done with webbing, rope or cord; webbing and cord are used in this course.
- Used to attach a sling to an object
- Used to attach personal anchor to harness
- Tails should be at least 4"

Figure 8 knot on a bight

- Preferred knot for forming a loop
- Often used when a backup is required on a climbing rope
- Strong knot that can be untied after being under a load
- Tails should be at least 4"

Rewoven Figure 8 knot

- Used in this course to tie into the end of a climbing rope
- Follow belay loop through strong points on harness when tying in
- Tails should be at least 6" unless a backup knot is used

Bowline knot (also referred to as a Single Bowline)

- Used to form a loop at the end of a climbing rope that will not slip
- Preferred knot for securing a free end of rope to an object
- Back up this knot with an overhand knot
- Backup knot required (see Stopper/Barrel knot)

Butterfly knot

- Tied on a bight of a climbing rope
- Preferred knot for tying into the middle of a glacier rope
- Used to tie off kiwi coil in lieu of the Double Bowline
- Tail should be at least 4"

Offset Overhand bend

- Method used to attach the ends of two climbing ropes together
- Good in icy conditions or where the knot might catch when retrieved
- Fundamental step in preparing a double rope rappel
- Tighten all around and leave tails at least 12" long or back up each side with overhand knots

Double fisherman's bend

- Method used to attach the ends of two climbing ropes together
- Fundamental step in preparing a double rope rappel
- Side with overhand knots
- Half a double fisherman's (double overhand) is used as a backup/stopper knot for a rappel
- Tighten all around and leave tails at least 4" long or back up each

Stopper/Barrel Knot

- Method used to "close the system"
- Add to end of rappel line as a stopper knot to prevent rappeler from slipping off end of rope
- Add to bowline or figure 8 as a backup knot

Coiling Rope

- Butterfly Coil: Used for rope storage and efficient way to transport rope (Method 1) https://www.youtube.com/watch?v=jPbAn7Fr5c0
- Backpack Coil: used to carry a rope. Start the same way as the butterfly coil, but leave long ends on the rope to wrap around yourself to tie off
- Nail Hitch: Another method for rope storage and efficient way to transport rope (2nd method)

Kiwi coil

- Used to shorten the rope between 2 climbers
- Secure coils by feeding tie-off bight through harness belay loop and then tie to single strand to the next climber using an overhand knot
- Tie off to harness with Butterfly as shown in FotH
- https://www.youtube.com/watch?v=6bq7_is-dJQ

Diaper Harness

- Rarely used in this course, but an important emergency method for attaching to a rope without a harness
- Use about 10 feet of 1" webbing (some people can use a double runner)
- Tie a loop with a water knot
- Bring a loop around each hip and one through legs
- Connect three loops with a locking carabiner

Square knot

- Not for climbing loads
- General purpose: most often used to tie off a coil of rope or tie your shoes
- As this is shaken/moved, the strands will often tighten up, instead of loosen like the Granny Knot

Hitches

Basket

- A simple hitch, used primarily in this course to connect your double runner to both hard points on your climbing harness
- Also a method to wrap runners around objects for anchors

Clove

- A very common hitch, used primarily in this course to tie yourself into an anchor with the climbing rope
- A fundamental step in preparing to belay
- Clove allows adjustment of distance between yourself and point of tie in

Münter

- A simple hitch tied into a carabiner to put friction on a rope
- Alternate method used for belay when a belay device is not available
- Hitch can reverse itself on a belay carabiner to allow rope to be pulled in either direction

Mule

- Used to tie off the rope within the belay system to allow the belayer to go hands-free
- First step in the ETO sequence
- Better suited for hitching around soft goods like rope or cordalette
- Also considered a "slip knot"

Half Hitch

- Also considered a "slip knot"
- Can be used as an alternative to the Mule when hitching around a solid object, like a carabiner

Autoblock

- Used with a rappel to provide a backup to the brake hand should the climber accidentally or intentionally let go of the rope.

- Uses a modified prusik knot to provide friction on the rope

Prusik
- A friction hitch used in this course for moving up and down a climbing rope
- Tied with nylon cord around a climbing rope
- Friction is dependent on differing diameters of cord and climbing ropes
- For rock climbing ropes in this course, 6mm nylon cord works well
- For glacier ropes, an additional wrap in the prusik may be necessary for adequate friction due to the thinner diameter of the glacier rope

Klemheist
- Akin to a prusik knot, but is strongest in only one direction of pull
- Tied with a loop of nylon cord or webbing
- Easier to tie, untie and move than a prusik

Texas Prusiks

Constructing your own Texas Prusiks
- Leave long tails of cord when constructing the prusik, do not cut prusiks until they are fine tuned
- Until fine tuning is complete, long tails are acceptable
- Refer to diagram in Freedom of the Hills for finished Texas Prusik

Texas Foot Prusik sizing
- Start with 12-14 feet of 6mm nylon cord
- Make a 12" loop in the middle using a figure 8 on a bight
- Locate stopper knots (with figure 8 at belly button, run loose ends under each foot, knot should be placed at the instep)
- Tie foot loops using half of a double fisherman's bend above the stopper on each side (allow for clearance over crampon points)

Texas Seat Prusik sizing
- Form a loop of 6mm nylon cord that extends from thumb to shoulder with arm fully extended – tie loop with a double fisherman's bend
- Test at home (safely) and adjust the lengths of seat and foot prusiks so that you can get good reach up the rope, but not so far that it is difficult to unload the foot prusik at full seat prusik extension

Note: some students will have a chance to size their prusiks in class; others will need to do this at home. Before the practice session that covers Anchor Building and Belay Practice, your prusiks should be sized. Fine tuning will occur that evening. Do not cut the ends of the cord until your prusiks have been tested with an instructor.

Summary and Expectations

Students should begin to develop proficiency in tying all knots, hitches and coils demonstrated tonight. Students are expected to practice knot tying on their own time and to be prepared to demonstrate progress at any time from now on in class and on field trips. It is our expectation that you will be proficient at tying all knots prior to the Fundamentals Field Trip. Students must construct, test and practice using their prusiks prior to the Fundamentals Field Trip (advice for modifications will be given at the field trip as needed). Prusiking skills will be evaluated at the Fundamentals Field Trip and Final Practical. To repeat, it is essential that the knot tying skills be mastered as soon as possible and practiced regularly in order to quickly and efficiently complete subsequent procedures that are fundamental to the Basic Course.

Session 3: Conditioning for Alpine Climbing

Class Schedule	
5:50	Log in to Zoom
6:00	Introduction and announcements
6:05	Fitness discussion
8:10	Conditioning Field Trip Primer
8:15	Class dismissed
8:30	All students and instructors off Zoom

Required Reading: See "Reading Assignments" – page 11

Required Practice: None

Equipment:
Online discussion. Note taking equipment

Purpose and Objectives:
This lecture introduces the basics of conditioning for alpine climbing. Alpine climbing is an endurance sport where cardiovascular strength and capacity weigh more than general strength and speed. While speed and strength are important, the ability to move all day at a consistent pace and be efficient with your transitions (we'll cover this later) are a much greater factor. We generally will categorize your effort into two groups Aerobic and Anaerobic work. Alpine climbers, endurance runners, swimmers, and cyclists generally want train in the Aerobic zones, where breathing is relatively unlabored, conversations while working out are easy hold, and the heart rate is relatively low. Power lifters, sprinters, crossfitters, etc, will generally fall into the Anaerobic zones, where respiration is hard, heart rate is high, and there's no conversation as you're gasping for air. If you want further stratification, divide our working/training efforts into zones, and you may hear some of the following

- Recovery: 0% to 70% your maximum heart rate (MHR). Easy running, very low effort. Breathing in unlabored, you can have conversational pace. Great for after strenuous days and you need to loosen muscles up, or you want to just get some exercise
- Zone 1: 70 to 75% MHR. Easy running, low effort. Breathing is unlabored, easy to hold a conversation while working out. This pace is a little faster than your recovery pace, but should be easy to hold. You should be able to hold this pace for HOURS, as this is the zone you'll want to be on climbs. Note: you will feel EXTREMELY slow at this pace at the get go
- Zone 2: 75% to 85% MHR. Moderate running, moderate effort. Breathing is through your nose, but you're aware of it. You can hold a conversation, but you may be only able to say a sentence or two before need to take a big breath. This pace is sustainable for 1-2 hrs at most before you feel like bonking. This is not a great pace for alpine climbing, but is an ok pace for certain types of training. This is the pace where most people feel like they're "working out" but it is terrible for training
- Zone 3: 85% to 90% MHR. This zone is where you start breathing out of your mouth. Heart rate feels high, conversations are a few words. This is the speed working zone, where you'll train for speed on certain days. Effort can be maintained for a maximum of 60 minutes
- Zone 4: 90% to 95% MHR. This is a high effort zone where you're breathing through your mouth. Conversations are one or two words max. You may be able to hold this pace for 5-10 minutes max
- Zone 5: 95% to 100% MHR. Giving it your all. There are no words. Sustainable for 10 seconds before your heart feels like popping. Vomiting may occur

Training generally consists of three phases: transition phase, base phase, and specific phase.

Note: these phases can apply to any type of sport or activity by modifying the exercises. I will give examples of more rock-climbing specific topics, but generally we'll only be covering alpine climbing fitness in this course.

Transition Phase
This is the shortest of all the phases, usually 2-4 weeks, and is typically associated with the transition from one sport to another. For example, if you're a weightlifter who wants to start running, this is where you start taking test runs, figuring out your baseline, figuring out pace, etc. If you're a short distance (<4 miles) runner transitioning to long distance, same thing. Most of the workouts here are low aerobic effort and relatively short distances. This phase usually lasts about two weeks and could also be used at the end of a training plan as a taper, or after an event as a rest phase.

Typical workout plan

- Monday: rest
- Tuesday: strength/core workout
- Wednesday: zone 1 30 minute run
- Thursday: rest
- Friday: strength/core workout
- Saturday: zone 1 60 minute run or hike

Strength exercises:
Dynamic Warm up.

3x10:
Warm up:

- 15 air squats (no weight)
- 10 Turkish Get ups (10-15 pounds)

Workout:

3 circuits of 10, all exercises with no additional weight except as noted

- Single leg deadlift (light weight, 5-10 lbs)
- Forearm Plank with alternate leg raise (1 min)
- Box step up (10 reps one leg, then the other)
- Pull Ups: full range of motion and no kipping
- Split Squat
- Hanging leg raise: as many as you can do with straight legs or bent legs
- Push ups-elevate feet on a bench

Stretch/foam roll

Substitutions:

- Strength/Core: Any type of strength workout is fine. Keep weights low, but high-volume reps (min 10).
- Cardio: cycling and swimming are great alternatives to running, however, the impact and overall development of your muscles and joints is not the same. We encourage at least 1 day of hiking and/or running a week.
- Rock climbers: 2 days a week of climbing. Light stretching for your hands. Start with easy bouldering or top roping. Each session try to do 1-2 routes or problems more than the previous session. Keep difficulty relatively low (VB, V0, V1, 5.6, 5.7) but volume high with some rest between
    - 4x4: boulder problem every minute on the minute for 4 minutes, then a 5 minute break. 4 times
    - Pyramid: 3x VB, 2x V0, 1xV1, 2xV0, 3xVB. 2 minute break between problems

Base Phase
This phase is oriented to building up your general/overall fitness. It is a combination of strength and cardio, but for alpine climbing, definitely more on cardio. This phase is the longest phase and will generally last 4-12 weeks, depending on what you're training for. Generally speaking, in this phase, we'll build on the hiking/cardio every week except for week 4, which we treat as a "recovery" week to allow your body to recover and adapt to the exercises. We follow the 10% rule, where each week your total cardio should increase no more than 10% over the following week. We encourage you try to follow the workout plan, but we know that it's a lot. If you had to pick one to do every week, we'd say hiking is the most important, followed by running, followed by strength days.

Typical workout plan

- Monday: rest
- Tuesday: strength/core
- Wednesday: Zone 1 hike
- Thursday: recovery run
- Friday: strength/core
- Saturday: Zone 1 hike
- Sunday: Zone 0/1 recovery run

Sample Strength/Core Training

Dynamic Warm Up

Strength
Use enough weight to successfully do 10-12 reps of each. DO NOT PUSH TO FAILURE. 1 circuit. Every two weeks, add another circuit

- Turkish Getup
- Push Up
- Split Bench Squat
- Dips
- Box Step Up
- Pull Up
- Squat
- Hanging Leg Raise

Core
Hold/do each exercise until you can no longer perform with good form. 1 circuit. Ever two weeks, add another circuit. When you can hold for one minute, add weight

- Sit ups
- Hip Abduction and Extension (Hitlers Dog)
- Windshield Wipers
- Three Point
- Kayaker
- Super Push Up
- Hanging Leg Raise
- Bridge
- L Sit
- Side Plank

Hiking Plan
Mid-week hikes are low weight, relatively low elevation. Stay in zone 1

Saturday hike: Start with a light pack (<20 lbs). Every week add about 10% more elevation to your weekly elevation total. Once you reach 4k feet on Saturdays, add 10% more weight every two weeks.

No Hiking Experience		Some hiking experience	
Saturday Hike	Week Total	Saturday Hike	Week Total
1000’	2000’	2000’	3000
1200’	2200	2400’	3400
1400’	2400	2800’	3800
700’	1400	1400’	4000
1600’	2600	3200’	4200
1800’	2800	3500’	4500

2000’	3000	3800’	4800
1000’	1500	1700’	2500
2300’	3300	4200’	5400
2600’	3600	4600’	5800
3000’	4000	5000’	6300
1500’	2000	2500’	3500
3300’	4500	5200	6800
3600’	5000	5400	7300
4000’	5500	5600	7800
2000’	3000	2000’	3500

Specific Phase
This phase is where we shift from general strength training to sport specific training. This phase can last 4-8 weeks.

Typical workout plan

- Monday: rest
- Tuesday: strength
- Wednesday: Hike
- Thursday; recovery run
- Friday: recovery run
- Saturday: hike
- Sunday: hike

Strength

Dynamic Warm Up

Strength/Core
Pick the 4 hardest exercises from strength and 4 hardest from core. 4 sets of 4 reps, wearing enough weight where 4 reps is challenging, but you still have good form

Hiking
Your midweek hike should be relatively low weight and elevation (15-20 lbs, 2000’) but high speed. Think warm up and then intervals. Intervals could consist of standard intervals (1 minute on, 1 minute off) or pyramid (2 on, 1 off, 3 on, 1 off, 4 on , 1, off, 5 on, 1 off, 4 on, 1 off, etc)

Weekend hiking should be done with overnight pack weight. If you are not yet capable of doing 4000’ gain with a 20 lb pack,, continue to do Saturday hikes at 4k increasing pack weight by 10% each week, Sundays will be a recovery run. If you can carry an overnight pack, then Saturdays elevation will increase by 10% each week, Sundays will be another hike of half that elevation. Example

Saturday	Sunday
4000’	2000’
4400’	2200’
4800’	2400’
2400’	1200’

At these elevation gains with heavy packs, this phase should last NO MORE than 8 weeks, otherwise you are at risk for injuries.

Nutrition & Fat Adaptation
Generally speaking, all cardio type activities should be done in a fasted state – start the activities without having eaten 4 hours prior. This is done in order to convert your body to use fat as its primary fuel source instead of carbohydrates. Your body can store many times more calories in fat than it can in sugars. While training, also consider how you fuel during the activity; do you eat every hour? Are you drinking water every hour? How do you feel throughout the day?

Remember, alpine climbing is an all-day activity – most climbs are a minimum of 9 hours, some as long as 19 hours. Have you hiked 9 hours straight prior to this?

Summary and Expectations

Students should have a general understanding of how to develop their own fitness plan and the training zones associated with this. Conditioning can be coordinated with the volunteers, but it is up to the students to increase or maintain their fitness throughout the season

Field Trip: Baseline Conditioner

Arrival Time and Location	**6:00 AM at Mt. Si Trailhead**
Directions	See map at end of this section
Driving Time	45 minutes from Seattle, 30 minutes from Bellevue
Equipment	See Equipment Matrix in the front of this Handbook
Reading Assignment	Review chapter. 2 and 4 of FotH. Pay special attention to the 10 Essential Systems & Conditioning sections

Note: you will need a discover pass to park at the trailhead. You can purchase a 1-day pass online at http://www.discoverpass.wa.gov/

Field Trip Objectives

- Demonstrate knowledge of the Ten Essential Systems
- Introduction to hiking with a heavy load
- Evaluate personal level of fitness

The purpose of this field trip is NOT to discourage unfit students; the intent is for every student to gain a general understanding of their personal level of fitness

Organization

At the trailhead, students will check-in and go over their ten essentials. Students and their packs will be weighed – the pack weight must be 35 lbs. for women and 40 lbs. for men. The start time will be recorded, and students will start hiking up Mount Si. At the top, weigh in again and record the arrival time. Take a break, eat, and drink some fluids and prepare for the descent.

A Few Tips

- This conditioner should take place in Zone 1. That means normal to easy respirations through the nose, and you should be able to converse with your partners. If you're gasping for air and need to take frequent breaks, you're going too fast and hard. SLOW DOWN.
- Make sure that you can drop the pack weight if you need to do so – water is an excellent way to add pounds to your pack, and it can be dumped at the top if the weight is too much for the decent.
- This is not a race or a test. The purpose of this field trip is for you to discover your current fitness level. If you are carrying too much weight, drop a couple of pounds along the way until you can hike at a reasonable pace. Do not over do it and risk injuring yourself. If you discover that you can only carry 20 lbs. that's okay. If you don't make it to the top, that's okay too! Now you know your fitness level and the amount of conditioning that will be needed before the main field trips begin
- A fairly fit person will do the hike up in about 2 hours. The average is 2 ¼ hours. We do require every student demonstrate the ability to complete the hike in 2 ½ hours. If you cannot accomplish this you'll be required to do a make-up hike. If you cannot accomplish this at the make-up hike then you may be asked to leave the class. We are trying to have everybody off the mountain by 12:00 PM. Ideally, we would like to have everybody finish at the same time, but the main point is – you need to be back at the trailhead by noon!
- 10 Essential Systems: know them and have them in your pack.

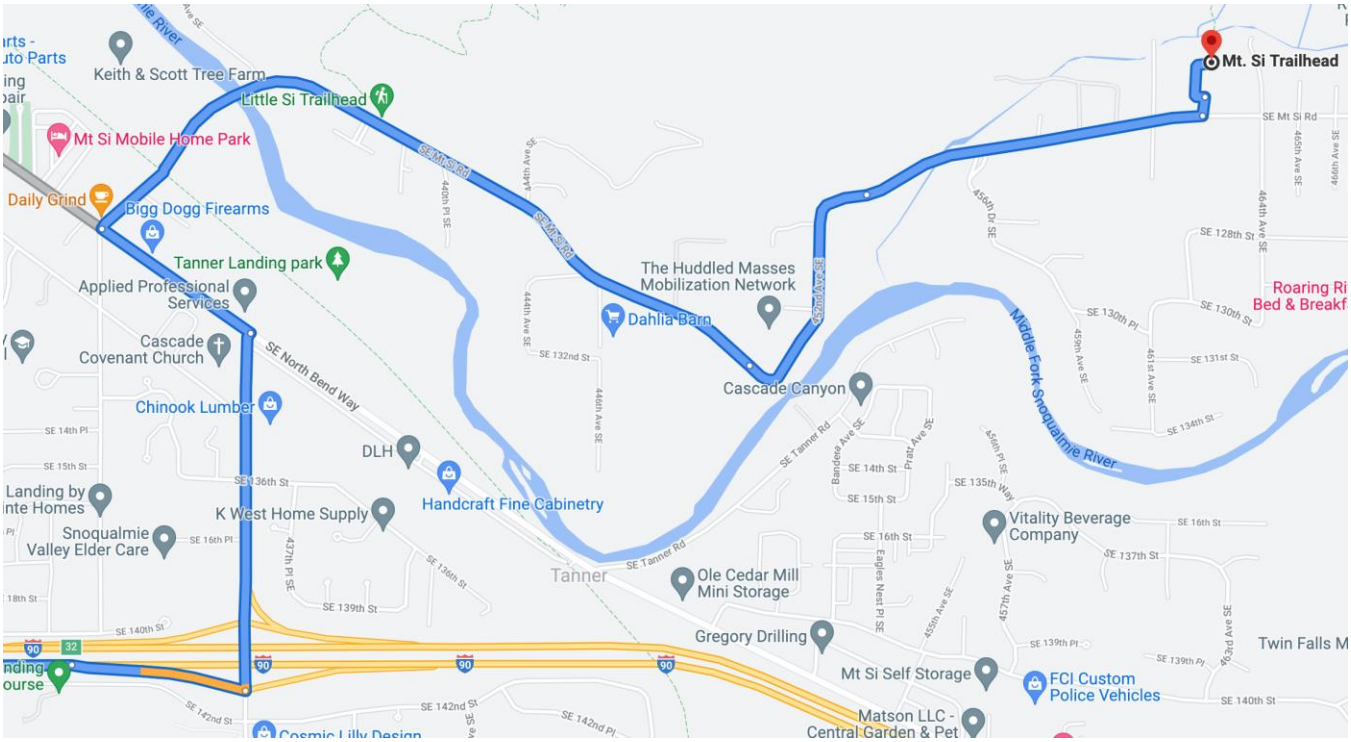
Safety Considerations

- Do not over-do-it! This is not a race to get to the top, but an introduction to climbing and hiking with a heavy pack.
- Watch out for dehydration – if the weather is warm, your body will soon heat up. Bring plenty of liquids to drink along the way!
- Dress appropriately in order to avoid overheating and getting drenched from perspiration.
- Plan for foul weather – this is winter after all! The weather this time of year can change dramatically and quickly. Carry rain gear and sunscreen; you never know what will be needed along the way or at the top.
- Bring a walking stick or trekking poles if possible. These can be very useful in slick and muddy places, plus your knees will thank you in the end!

No one will climb the Haystack at the top of Mount Si. We are not interested in your climbing ability yet. Take it easy at the top, sit down, rest, grab a bite to eat and drink lots of water instead!

Mt Si Trailhead Driving Directions

- From I-90 Eastbound, take Exit 32 to 436th AVE SE
- The exit is just east of North Bend
- At the end of the off ramp, turn left onto 436th AVE SE
- Travel 0.9mi on 436th AVE SE.
- Turn left onto SE North Bend Way
- Travel 0.3mi on SE North Bend Way
- Turn right onto SE Mt Si Road
- Travel 2.4mi on SE Mt Si Road,
- SE Mt Si Road curves several times; stay on main road.
- Turn left at the hiking sign.
- The approximate location of the lot is marked by a smiley face on the map.
- Please park in the lot farthest from the trailhead (lot nearest SE Mt Si Road)



Session 4: Anchors and Belays

Class Schedule	
5:50	Check in
6:00	Introduction and announcements
6:05	Rock Anchors
6:45	Break
7:00	Belaying
8:15	Class dismissed
8:30	All students and instructors out of facility

Required Reading: See "Reading Assignments" – page 11

Required Practice: Construct Static-Equalized Anchor and Self-Equalizing Anchor. Belay in and out with each hand, using belay/rappel device and Münter hitch.

Equipment:
Practice rope, harness, personal safety anchor, (3) locking carabiners, belay size locking carabiner, belay/rappel device, (6) non-locking carabiners, cordelette, (2) double runners, hero loop prusik

Purpose and Objectives:
This lecture covers the fundamental construction of anchors used in rock climbing and proper technique for belaying a climber on rock. With respect to anchors, key topics include load factors, self-equalized vs. static equalizing set ups, and the SERENE principle (Solid, Efficient, Redundant, Equalized, No Extension). Belay technique includes proper setup, rope handling, and communications between belayer and climber. Trading roles as climber and belayer are also covered to reinforce basic skills and to put rope handling procedures and communications in context. Knot tying skills covered previously are reinforced through practical application of those techniques.

Topics

Rock Anchors

Materials: students will generally be building simple anchors using slings: 1" climb spec (smooth) or military spec (ribbed) webbing, a locking carabiner and two non-lockers for attachment points.

Material strengths (approximate, differing slightly by manufacturer)
- 1" military spec webbing - 18 kN (ok for this course)
- 1" climbing spec webbing - 19 kN (ok for this course)
- 9/16" military spec webbing - 7 kN (not used for climbing)
- 9/16" climbing spec webbing – 10 kN (ok for this course)
- 7mm cordalette – 12 kN (ok for this course)
- 6mm cordalette – 9 kN (not used for anchors)

Good anchor points
- Stout, living trees, girth hitched and using 2 separate runners
- Rock horns or rock tunnels
- Solid boulders
- Existing anchors (i.e., multiple existing runners on a good attachment)

Static-Equalized Anchor
- Two carabiners attached to independent anchor points (redundant) - ensure attachment points are in correct relation to each other. Reference the diagrams in FotH which illustrate angles and resultant forces. Try to keep the angle between anchors at 60 degrees or less, 90 degrees is absolute maximum.
- Two slings of appropriate length OR a single sling or cordelette with an overhand or figure 8 knot to form a power point (equalized and redundant)

- A locking carabiner attached to both slings
- The belayer must be oriented to direction of pull, carabiner locked, and system checked (Now it is **S**olid, **E**fficient, **R**edundant, **E**qualized, and **N**o **E**xtension)

Pros: satisfies SERENE concept; will work well assuming all components are sound
Cons: will not accommodate change in direction of pull without losing equalization, length of slings need to be just right for intended direction of pull

Timely Construction of Anchors

Shock Loading: Some basic truths, simple math and common sense...

Okay, you're climbing, your rope and harness are secure, the anchor is bombproof, and you feel pretty safe. The thought of falling doesn't upset you. Everything's cool. Maybe. But every fall creates an enormous amount of energy. We are, after all, relatively large creatures, and gravity is a formidable force - as any belayer who has caught a big fall can attest. The shock load from a fall is transmitted all through your security system, and is nearly doubled at the anchor or pro on top. Every element in the chain has to sustain the shock without breaking if your fall is going to cause you nothing worse than scrapes and bruises.

Shock load is the result of three factors:
- Nature of the rope (dynamic stretch)
- Fall factor
- Weight of the falling object (i.e. you)

Fall Factor Explained...

In a vertical situation, when using a dynamic rope, it is never the length of the fall that determines the force of the fall (in spite of the psychological aspect). The ratio of the height of that fall to the length of the rope in use at that moment determines the force of the fall. That ratio, known as the fall factor, is the subject of discussion.

A Fall Factor allows you to evaluate the impact force generated by a falling climber.

It is simply the length of the fall divided by the length of the rope from faller to belayer. The equation looks like this:

$$factor = \frac{fall}{rope}$$

Where factor is the computed fall factor, fall is the length of the fall and rope is the length of rope out at the time of the fall.

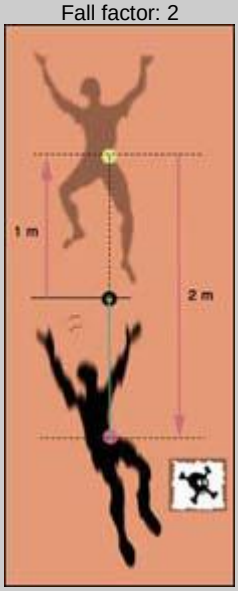
In climbing, the highest fall factor is 2 because it is impossible to fall more than twice the length of the rope. That is the basic assumption, and all the elements of the belay chain (rope, carabiners, anchor points...) are conceived, designed and certified around this famous factor.

Obviously, a fall of factor 2 generates the highest impact force on the falling climber, and an identical force is transmitted to the anchor point. If there is an intermediate bolt or protection which stops the climber, the fall factor is reduced and so is the impact force on the climber. But note that the intermediate bolt or protection can be subjected to up to twice the impact force that the climber experiences. So, imagine the force it is subjected to if the fall factor is 1.9!

What is not - or poorly- expressed by the fall factor, is the energy that will be distributed between the climber, the belayer and the various components of the chain in a fall.

Fall Factor Illustration

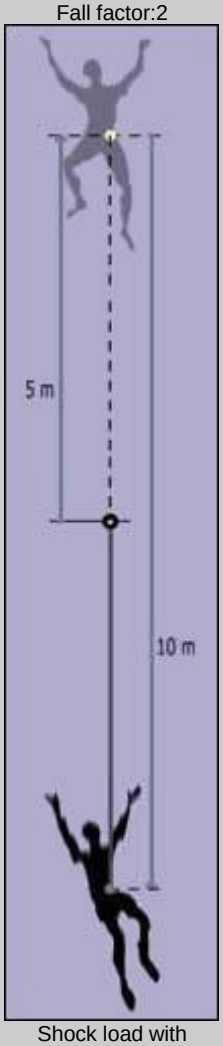
Fall: 2m
Static webbing
Length: 1 m
Climber's weight:80 kg
Fall factor: 2



Shock load with static webbing:

18 kN

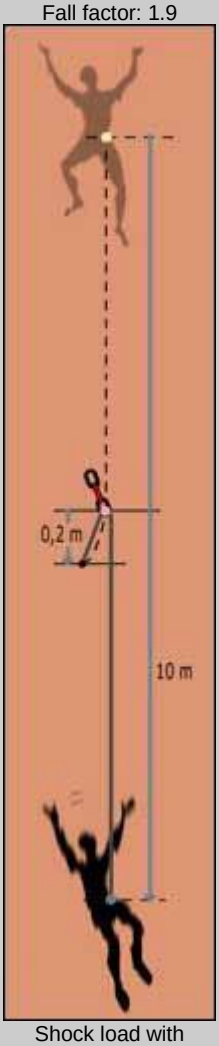
Fall: 10 m
Dynamic rope
Length: 5 m
Climber's weight:80 kg
Fall factor:2



Shock load with dynamic rope:

9 kN

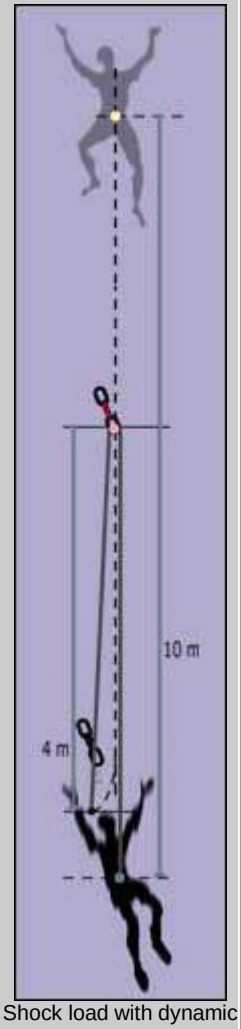
Fall: 10 m
Dynamic rope
Length: 5.2 m
Climber's weight:80 kg
Fall factor: 1.9



Shock load with dynamic rope
• on the climber: 9 kN
• on the top runner:

15 kN

Fall: 10 m
Dynamic rope Length: 9 r
Climber's weight:80 kg
Fall factor: 1.1



Shock load with dynamic rope
• on the climber: 6 kN
• on the top runner:

10 kN

Your life depends on the stretch of the rope...

As mentioned earlier, shock load is the result of three factors:

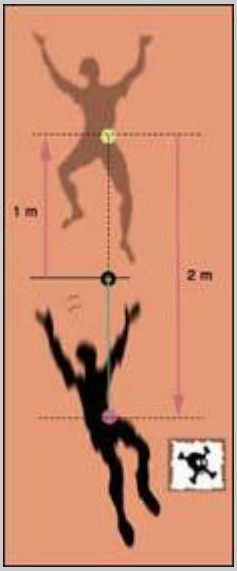
- Nature of the rope (dynamic stretch)
- Fall factor,
- Weight of the falling object (i.e. you)

Obviously, the only part of this equation that can reduce the force of a fall is the bungee-like stretch of the dynamic rope. Thus, climbing safety systems are designed around the shock-absorbing quality of dynamic rope. It cushions the fall, reducing the impact force and the chance of system failure. In fact, the dynamic rope is the one "given" in the whole system. It is designed to limit the force of one climber's weight (80 KG) in a worst-case fall (Fall Factor 2) to a maximum of 12 kN. Thus, the rest of the gear can be designed to work with this known maximum force.

More rope means more stretch to absorb a fall. Which explains why a Fall Factor 2 drop of 4 meters develops the same shock force - 9 kN - as one of 20 meters, assuming a dynamic rope is used that conforms to UIAA standards. What's happening is that the increasing length of the fall (and the greater shock force that goes with it) is compensated by the greater length of the rope available to cushion its arrest.

Static rope doesn't stretch enough....

Fall: 2m
Static webbing
Length: 1 m
Climber's weight:80 kg
Fall factor: 2



Shock load with static webbing:

Slings, runners and commercially manufactured personal anchors are just like static rope...

Used for security, without a dynamic rope, runners are just as dangerous as static rope. As the diagram shows, a Fall Factor 2 develops enough shock load to risk failure of the runner, the harness, carabiners, not to mention a lot of failure in the climber's skeletal system.

This is worth saying again:

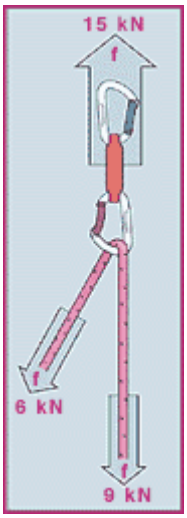
> **A fall of three feet on a static rope or sling can create enough shock force to cause serious injury or death.**

Bearing in mind that the human body can only handle, for a brief instant, a shock force of 12 kN without risking serious injury, you don't want to go around absorbing 18 kN. And you should know that 18 kN is getting real close to, or over, the minimum limits set by the UIAA on all the gear in your safety system.

For purposes of comparison, here are the UIAA limits:

- Anchors: 25 kN
- Carabiners: 20 kN
- Slings: 22 kN
- Harnesses: 15 kN

Meanwhile up at the carabiner....



Physics isn't our friend in a fall. The same mechanical advantage we use in pulleys works against us when we're on the end of a rope. At the point where the rope returns [i.e. doubles back, normally at a carabiner], the force of the fall is increased by approximately 66% (it would be doubled except for the friction of the rope against the metal).

So, starting with our 9 kN maximum shock force with a dynamic rope, the force on the carabiner becomes 15 kN in a Fall Factor 1.9 fall. That's a lot. You better hope it's a good anchor or placement.

Now apply that same math to a static rope. The factor 1.9 fall, with is normal shock force of 18 kN, becomes a shock force of 30 kN (multiply 18 kN by 1.66) In this case, you couldn't even count on a stout tree. And it wouldn't matter if the anchor held, because something else would undoubtedly fail.

(courtesy of Petzl)

Belaying

Important Points

- Stance: A.B.C. (anchor, belayer, climber)
- Equipment
- Using a belay device
- Belay method choice: SSS vs. PBUS
- Gloves required through ROCK 2
- Catching a fall
- Belaying without a belay device (munter hitch belay)
- Communication: radio, whistle, or long, deliberate and forceful rope tugs
- Belaying follower vs. leader
- Belaying from below vs. belaying from above

Disclaimer: Much of this text was written by the American Alpine Club and taken from their website. The complete text can be found at https://americanalpineclub.org/education-blog/2016/3/15/9ifwyakbvdf826by6gv97y1uzk1mzb.

Belaying has a long history. Innovated primarily in nautical applications, the earliest known belay techniques logically transferred to mountaineering, where climbers needed to a tool to secure each other during mountain travel. The fundamental principles that optimized the effectiveness of those early belay techniques have not changed. In fact, it is hard to imagine modern belaying without the standards and principles that preceded it.

The earliest belayers learned that in addition to the fundamental principles of belay they also needed to be attentive, vigilant, and take their responsibility to secure the climber very seriously. Today, that same attentiveness, vigilance, and seriousness should also characterize modern belaying.

The Foothills Mountaineers teaches and believes in the fundamental principles of sound belay. This requires adherence to the following three principles. During this course we will teach several belay techniques: PBUS, SSS & Hip belay. Each of these techniques adheres to these principles when executed properly, safely and in the right context. Our instruction will include how to use each technique safely and when to use each technique based on the situation.

Principle #1: A brake hand must be maintained at all times.

The earliest belayers quickly learned that relinquishing a firm grip on the brake strand of a belay system creates an opportunity for catastrophe. If the climber falls in the instance that brake strand is not being maintained, the accelerating

fall and rapid movement of the rope is almost impossible to arrest. Accordingly, one hand must be holding the brake strand of the rope at all times.

Principle #2: Hand transitions should happen in the position of maximum friction

Modern belay tools, and the body and terrain techniques that preceded them, use friction to enhance the grip strength of the belayer. The friction of a belay tool dissipates the amount of mass the belayer needs to hold, and then the belayer's bodyweight or the anchor is used to arrest the climber's fall. As a result, there are points in the belay cycle where there is a maximum amount of friction and a minimum of friction. In the sequence of belaying, a belayer will need to continually move slack through the belay system, so there is a continual sequence in the which the rope is moved the system, and then the brake hands adjust their position on the rope in order to move slack again. The time when the hands transition is one of the most vulnerable moments in the belay cycle, and during that time the rope should rest in a position of maximum friction while the hands reset.

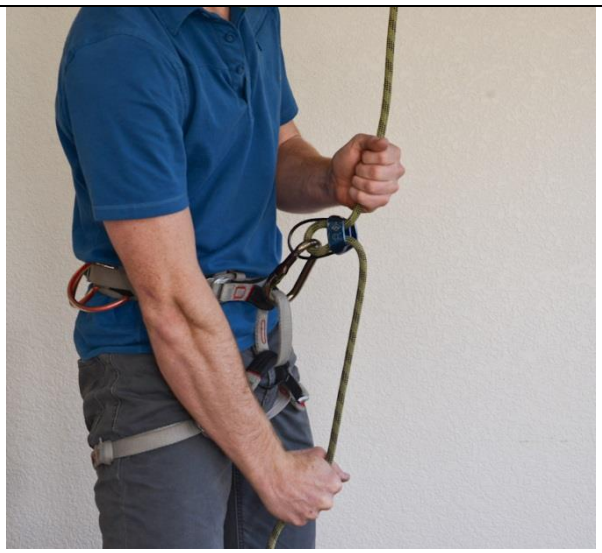
Principle #3: The hands and limbs should be positioned ergonomically

Pulling on the rope, pulling slack through a belay system, resting in the brake position, and sustaining a fall, all require belayer to use their bodies and joints in a repetitive and sometimes strenuous way. It is important that hands and limbs take advantage of the natural ergonomics of the belay system so that stamina, reactivity, and grip strength are optimized.

PBUS Belay (Pull, Brake, Under, Slide)

Images and text from Expedition Backcountry Adventures - http://expeditionba.com/blog/how-to-top-rope-belay/

Start out by making sure your ATC is oriented correctly and a locking carabiner should be clipped through both the rope and the ATC. Place your brake hand on the brake side of the rope with your palm facing down. The climber's rope should be coming out of the top of the ATC and the brake rope coming out of the bottom. When loaded, the locked carabiner shouldn't twist the belay loop of your harness.	
Pull - As the climber moves up the rock, you need to pull in the extra rope (slack) to keep the rope taught. Do this by pulling down on the climber's side of the rope with your free hand (left hand) while simultaneously pulling out on the brake side of the rope with your brake hand (right hand).	

Brake - After pulling in the slack, bring your brake hand (right hand) down into the brake position.	
Under - Now that your brake hand (right hand) is in the brake position, have your free hand (left hand) grab the rope underneath your right hand.	
Slide - Once both hands are firmly grasping the brake side of the rope, slide your brake hand (right hand) up the rope until it is just a couple inches from the ATC. Your brake hand should never come off of the rope, simply loosen its grip on the rope so that you can slide it up.	

Lowering

When your climber is ready to be lowered, grab the brake side of the rope with both hands (palms facing down) and keep the rope in the brake position until the climber is fully weighting the rope. Gradually bring both hands up out of the brake position until the climber is being slowly lowered. If the climber isn't coming down fast enough (too much friction or a lightweight climber) then try shuffling the rope through your hands while lightly grasping it. Both hands should always be holding the rope.

Slip/Slap/Slide (SSS)

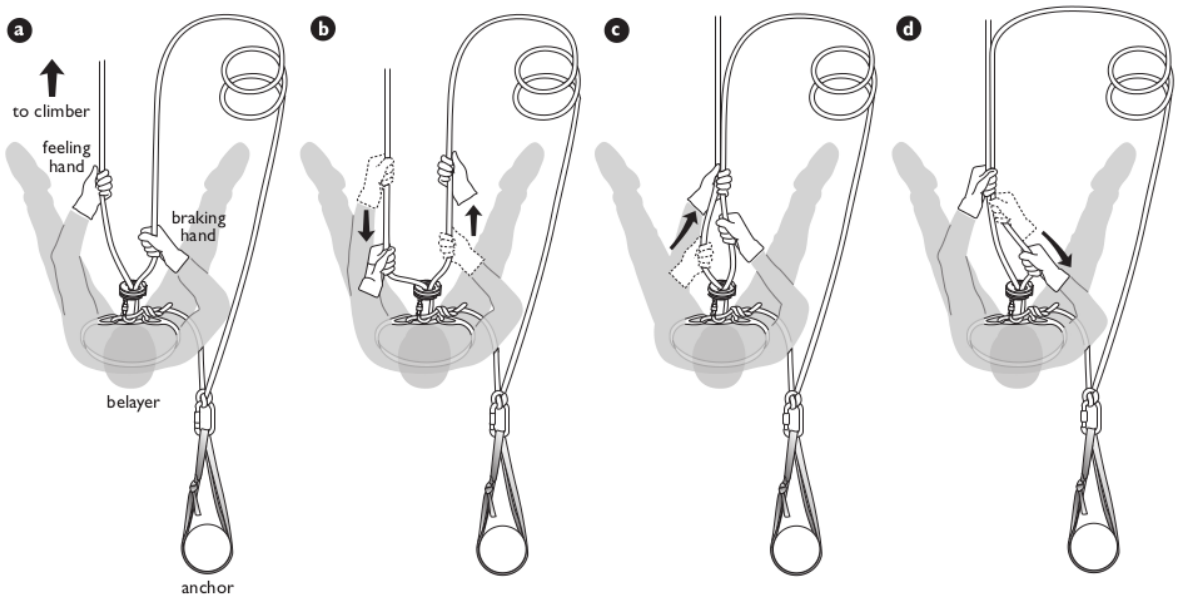


Fig. 10-3. Hand motions for taking in rope, with the braking hand never leaving the rope: a, start with the feeling hand extended and the braking hand close to the body; b, pull in the rope with the feeling hand while pulling the rope through the belay device and away from the body with the braking hand; c, extend the feeling hand past the braking hand and grasp both strands of the rope with the feeling hand; d, slide the braking hand back toward the body and release the braking hand's strand of the rope from the feeling hand.

Summary and Expectations:

After this lecture, students are encouraged to practice rope handling (belay technique) and anchor set up. At the next in-class practice session, and many times hereafter, students must demonstrate their ability to establish a SERENE anchor, set up a belay and perform a belay. Likewise, alternative anchor setups must be understood and constructed when requested (e.g., using trees, rock horns, multiple anchor points).

These skills will be formally evaluated at the mid-term practical as well as at field trips. You must practice anchor construction and belay before the practice session. The practice session is for refining technique; not for introductory level instruction. Belay skills and basic anchor construction skills must be mastered before the Fundamentals Field Trip. Demonstrated proficiency, especially in belaying and catching a simulated fall with weights, will be a requirement for continuation in the Basic Climbing Course.

Session 5: Ascending the Rope, Fundamentals Review

Class Schedule	
6:00	Sign In at Seattle Program Center Lobby
6:10	Introduction and announcements
6:35	Group A: Practice ascending rope / Group B: Fundamentals Review
7:40	Break
7:50	Group A: Fundamentals Review / Group B: Practice ascending rope
8:40	Field Trip Information
8:45	Class dismissed
9:00	All students and instructors out of SPC

Required Reading: See "Reading Assignments" – page 12

Required Practice: All knots, hitches, bends and coils.
Construct Static-Equalized Anchor and Self-Equalizing Anchor
Belay in and out with each hand, using belay/rappel device and Münter hitch
Prusiking up rope

Equipment: Practice rope, harness, personal safety anchor, (3) locking carabiners, belay size locking carabiner, belay/rappel device, (6) non-locking carabiners, cordelette, (2) double runners, hero loop prusik, Texas Prusiks, chest harness

Purpose and Objectives:
Students will have class time for practicing building anchors, belaying and Texas Prusiks. Students are expected to have read all previously assigned pages from FotH and should be proficient in tying knots learned thus far. The upcoming field trip will be discussed.

Fundamentals Field Trip

Class Schedule	
8:00	Arrival Time at The Mountaineers Seattle Program Center
8:30	Student Briefing
9:00	Field Trip Starts
3:00	Wrap up
3:30	Pizza

Field Trip Objectives:

- Demonstrate anchor evaluation using SERENE
- Learn and practice belaying and prusiking
- Be able to tie ALL knots with no help
- Make needed adjustments to harnesses and prusiks
- Begin learning the practices of SAFE mountaineering

Organization:

Upon arrival, put on appropriate clothing and put your harness on. The field trip leader will conduct an orientation at the start of the day and you will be issued your field trip booklets. During the course of the day, individuals will rotate through the three different stations (described below). Make the time count, and when we give the signal to move on to the next station – MOVE ON!

Knots/Belay Prep: The main focus is to show that you know how to tie each of the knots described in the handbook. If there is extra time, you will practice the belay technique so you are ready for the belay station.

Anchors: At any station that involves an anchor, whether you built it or not, you will need to evaluate the anchor using SERENE principles

Belaying: Here you will practice your belay techniques, rope management skills, and proper belay stance by "belaying" a weight that will be raised (and dropped) by a pulley system.

Prusiking: Practice ascending and descending a fixed rope using Texas Prusiks attached to your harness. This simulates a self-rescue from a crevasse – you will get more practice with this on the Snow 2 Field Trip, but you will be in a cold, wet crevasse at Snow 2. It is HIGHLY recommended to perfect your skills in the relative comfort of this field trip or at your home.

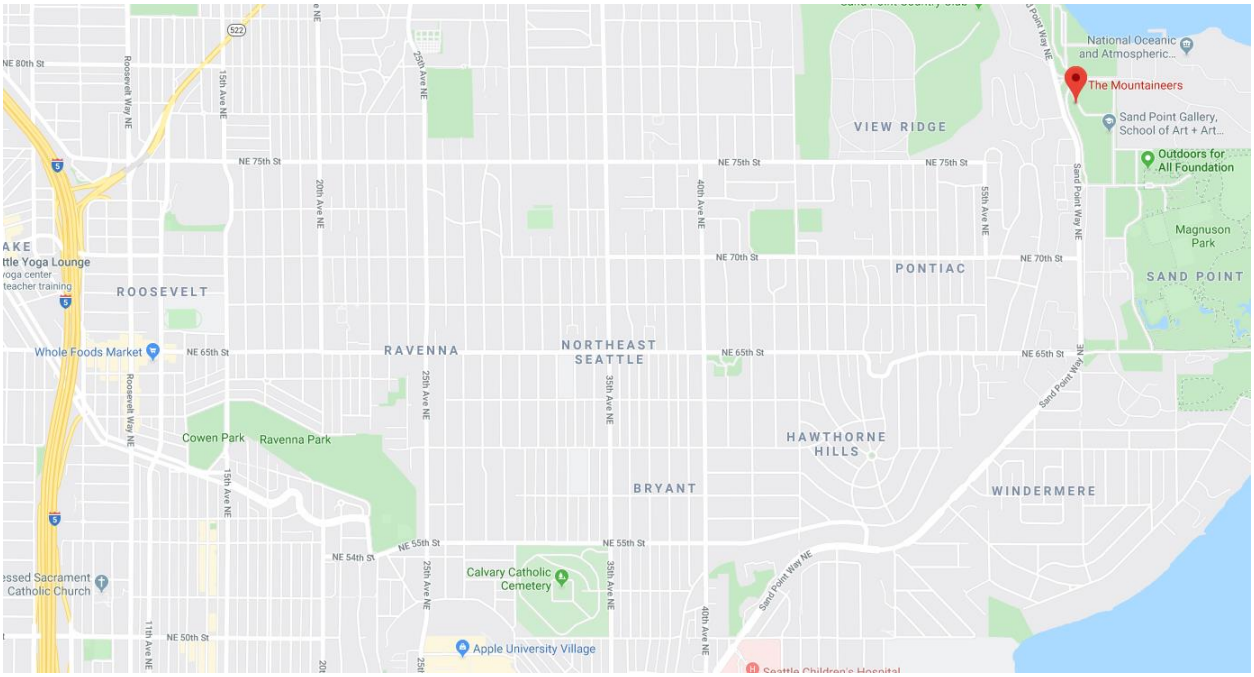
Safety Considerations:

- Helmets must be worn at the belay and prusik station.
- The belay area will have weights falling throughout the day, so be safe and stay well clear of the weights!
- All belayers must wear their belay gloves.
- When belaying using a belay device, you must PULL BACK with your braking hand in order to create the friction necessary to stop the fall. Failing to pull back could cause the rope to rapidly and powerfully run through your hand until the falling weight strikes the ground. The friction of the rope running through your hand could burn you unless you wear gloves.
- Always check and double-check each other before starting to do any technical skills like prusiking or belaying. Get in the habit of watching out for each other!

A lunch break is not scheduled into this trip, so fit it in whenever you can. Better yet, snack frequently all day long – it will keep your energy level up! If you don't know how to do something, DON'T PRETEND THAT YOU KNOW – ask questions and be open to the learning environment. Most of all, have fun and see how many new friends you can make throughout the day. Afterwards, plan to join the group for pizza and beverages at the local hangout – it's a great way to wrap up the day!

Mountaineers Program Center Driving Directions

1. 7700 Sand Point Way NE, Seattle, WA 98115
2. From Southbound I-5
3. Take Exit 171 to NE 65th St
4. At the stop sign at the end of the off ramp, take a soft left onto NE 71st St
5. NE 71st curves back over I-5 and turns into NE 70th St
6. Go one block past the freeway and turn right (south) onto Roosevelt Way NE
7. Take Roosevelt Way NE five blocks to NE 65th St
8. Turn left (east) onto NE 65th St
9. Take NE 65th St for 2.6mi
10. Follow the main arterial road; NE 65th briefly becomes Princeton Way where it curves down a hill, but it changes back to NE 65th St at the end of the curve.
11. Turn left at Sand Point Way NE
12. Take Sand Point Way NE for 0.4mi
13. Turn right, into the Magnuson Park complex
14. Take an immediate left after the gate, and follow this frontage road for 0.1mi to the Program Center.



Session 6: Rappelling

Class Schedule	
5:50	Check-in
6:00	Introduction and announcements
6:05	Rappelling Demonstration
6:35	Rapelling Practice
7:15	Break
7:25	Rapelling Practice (continued)
8:15	Class dismissed
8:30	All students and instructors out of facility

Required Reading: See "Reading Assignments" – page 12

Required Practice: Set up a rappel

Equipment:
Practice rope, harness, personal safety anchor, locking carabiner, belay size locking carabiner, belay/rappel device, autoblock, (3) double runners, hero loop prusik, Texas Seat Prusik.

Purpose and Objectives:
This lecture is split into two segments: First, the extended rappelling method is demonstrated, including a short discussion of the appropriate circumstances for using each type. Safety is paramount throughout rappelling procedures. Given the potential danger, a systematic approach to setting up and checking a mechanical rappel system is emphasized. After the demonstration, students will practice as all of the rappelling methods and techniques described below.

Topics

Rappelling

Rappelling Methods & Techniques

- Extended mechanical (belay device)
- Fireman's belay
- Leg wrap tie off
- Autoblock back-up (see FotH)
    - Not secure enough to be used independently to prevent falls
    - Looped around the rope and attached to the belay loop with a carabiner

Rappelling Technique

Prior to cast-off, EVERYONE should verify the components of the system:

CHECK SEVEN CRITICAL COMPONENTS

1. The anchor
2. The rope
3. Your belay device
4. Your locking carabiner
5. Your extension
6. Your autoblock
7. Your harness

Anchor:

- SERENE
- Check bolts/bolt hangers
- Boulder: stable
- Tree: solid, alive
- Check slings, rap rings, carabiner etc. for wear & appropriateness
- Rap ring(s) - steel/aluminum - locking carabiner or non-locker with taped gate

Rope:

- Attached to anchor, fed through properly
- Knot to hold center of rope when throwing
- Coil & knot ends prior to throwing (call out "ROPE" before throwing)

Belay Device:

- Rope fed through properly
- Clipped to carabiner on extension

Locking Carabiner:

- Locked

Extension:

- Carabiner clipped through both loops of extension
- Extension tied through both hardpoints on harness

Autoblock:

- Hollow block (or nylon cord, accessory cord, etc.) wrapped around both brake strands (i.e. below belay device)
- Clipped to belay loop with locking carabiner

Harness:

- Adjusted properly
- Buckles double backed

Other considerations:

- Remain attached to the anchor until you are ready to rappel
- Tie knots in ends of rope - use a half a double fisherman knot (double overhand) with 18" of tail (figure 8 knots can come untied.) **KNOTS MUST BE DRESSED PROPERLY AND CINCHED TIGHT!**
- Call out "ROPE" before throwing down the coils
- Call out "On Rappel"
- Prevent rope from rubbing over sharp edges
- Remember which end of the rope to pull on double rope rappels
- Double check your/your partner's rappel set up
- Watch for loose rocks
- Rappel smoothly
- Take precautions with loose objects getting snagged in the system (clothing, hair, gear etc.)
- Be sure rappel ends at a safe location
- Which end to pull on double rope rappel?
- Will rope pull freely when pulling? Will knot get stuck?
- Watch for rock horns, constrictions that may snag the rope when pulling
- Always keep ends of rope below you—do not rappel past where the rope is snagged on a ledge or tree

Rappelling with a Belay Device

- Insert bight of rope into belay device
- Free ends of rope to come out of device on bottom (to swap brake hands)
- Pull back on rope to brake - pull from behind hip to add friction
- Feed rope through bottom of pear carabiner to facilitate switching brake hands
- Use one hand on the brake and the other hand on the autoblock to control its friction
- Use the brake hand to control decent speed not the autoblock—the autoblock is a backup and should remain disengaged while descending

Autoblock Backup (see FotH)

- Use hollow block, single runner, or nylon cord loop and locking carabiner
- Adjust number of loops as needed
- Acceptable for momentary freeing of hands when properly tested
- Always setup your autoblock first. Doing so takes the weight of the rope and makes the other rappel steps faster and easier

Fireman's Belay

- Belay performed by climber at the bottom of the rappel (therefore not an option for the first climber to descend)
- Used to back up belay of partner for comfort or injury
- Pull on rope to create belay
- Beware of rockfall

Leg Wrap Tie Off (see FotH)

- Used to free hands while rappelling without an autoblock OR when more than momentary hanging on the Autoblock is required
- Lock off belay device to stop
- Reach behind with non-brake hand, grab both strands, pull to other side
- Wrap rope strands around leg multiple times (opposite of brake hand)

When descending, keep an eye on the ends of the rope below you in the event the rope was not centered on the anchor and one strand is shorter than the other.

Call out "off rappel" when you have removed the rope from your device.

Extended Rappel with Autoblock Setup

- Create the extension using a double sewn or tied sling looped through the hard points in the harness (not girth hitched). Tie both ends off together to create a power point using a figure-8 knot.
- A locking carabiner is clipped to the power point and the rappel device is clipped to the carabiner.
- An autoblock is wrapped 3-4 time around the rope (depending on diameter of rope and friction required.)
- A second locking carabiner for the autoblock is clipped to the belay loop.


Belay device threaded with both sides of rope and carabinered back to both loops of runner
Sewn double runner looped thru both hardpoints, knot added as masterpoint and to reduce length
Autobloc wrapped around brake side and carabinered back to belay loop with locking carabiner

Session 7: Escaping the Belay

Class Schedule	
5:50	Check-in
6:00	Introduction and announcements
6:05	Escaping the Belay Demonstration
6:45	Practice escaping the belay
7:15	Break
7:25	Practice escaping the belay (continued)
8:15	Class dismissed
8:30	All students and instructors out of facility

Required Reading: See "Reading Assignments" – page 12

Required Practice: Perform the full sequence of escaping the belay

Equipment:
Harness, personal safety anchor, locking carabiner, belay size locking carabiner, belay/rappel device, autoblock, (3) double runners, hero loop prusik, Texas Seat Prusik.

Purpose and Objectives:
In this Session, we will discuss elements and sequence of escaping the belay, and its application in climbing situations. Knots and gear used in the system will be covered, and a demonstration of an Emergency Tie Off (ETO) scenario will be provided. Students will learn the entire sequence of tying into an anchor, belaying a climber, performing ETO and escaping the belay. Following the demonstration, students will take turns practicing belay escape for the remainder of the session.

Topics

Emergency Tie-Off (ETO)

Introduction and Context

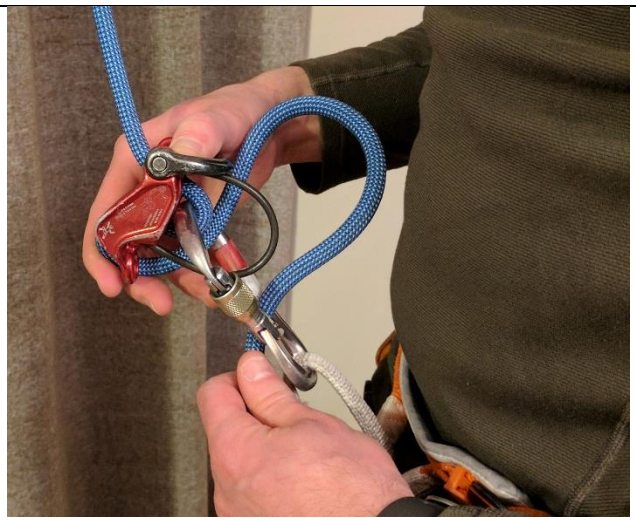
There are many different methods that climbers use to tie-off another climber at the point of belay. In this course, you will learn the method that uses a mule hitch with an overhand backup.

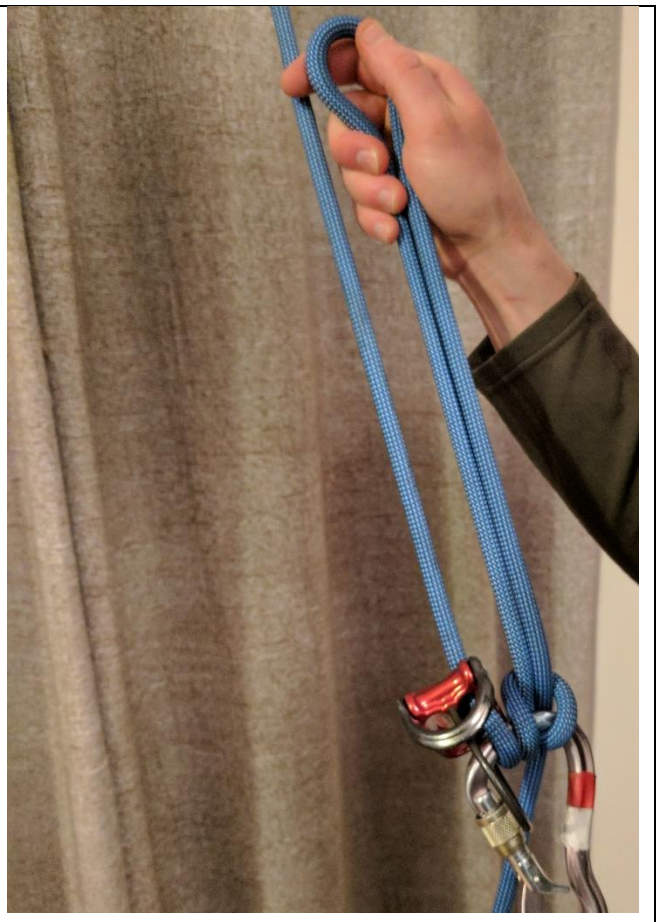
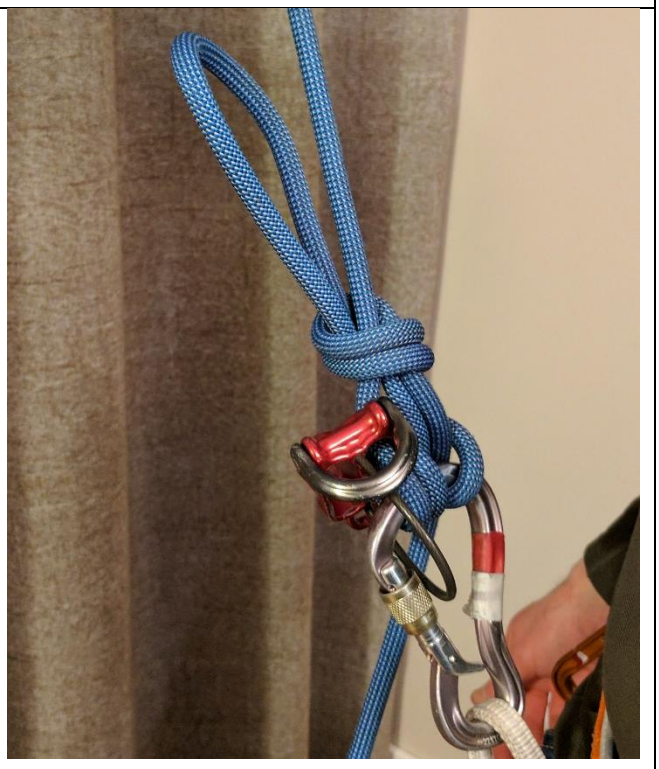
Knots for ETO: **MOP-FEB**

- **M** – modified mule hitch (device mule)
- **O** – overhand knot
- **P** – prusik hitch
- **F** – figure eight on a bight
- **E** – escape the belay
- **B** – backup figure eight knot (loop on a bight)

Modified Mule (Device Mule) Hitch on a Belay Device

This method is designed for tying off a lead climber so that you can go hands-free

Pinch the rope coming out of the belay device	
Pass a bight of rope through the belay carabiner	
Pass a second bight through the first bight of rope	

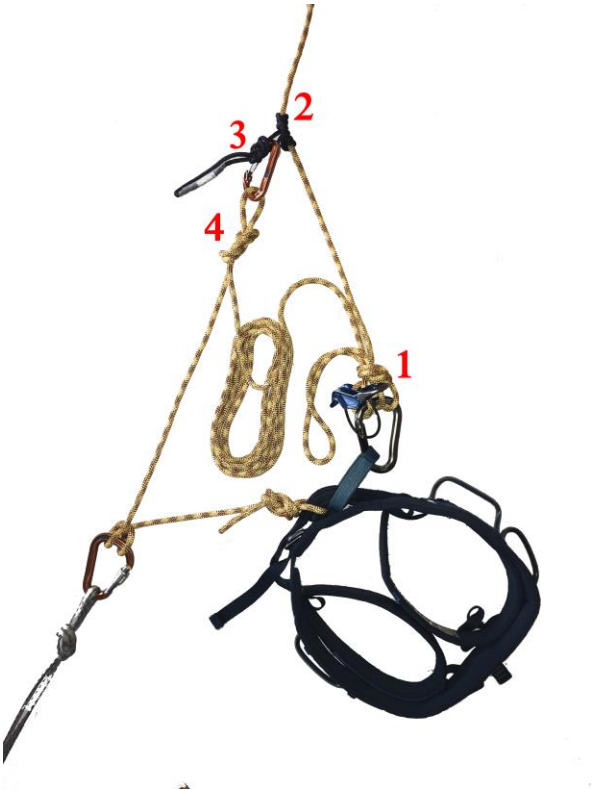
Pull the knot tight and feed sufficient rope through the mule knot to tie an overhand backup	
Tie an overhand knot as a backup. Be sure it is tied as close as possible to the mule knot.	

Emergency Tie Off

Note: Before initiating the ETO always evaluate if lowering the climber to take weight off the harness is possible.

ETO Sequence:

1. Perform the Modified Mule (Device Mule) Hitch on a Belay Device described above. At this point you are safe to be hands free. The tie off should be on the spine side of the carabiner. This also means you should have initially setup your belay with the brake hand on the spine side.
2. Tie a prusik to the climber's rope using a short nylon cord loop. Position the prusik 1-2 inches above the tied off belay device. If using a long prusik tie an overhand knot in the prusik to shorten it.
3. Attach a carabiner (locking or non-locking) to the prusik loop (if you tied an overhand clip it above the overhand knot).
4. Tie a figure eight on a bight on the rope coming from the anchor and attach it to the carabiner on the prusik loop. Push the prusik up the rope tight to remove any slack.
5. Slowly untie the device mule and release the climber's load onto the system you just tied. Be careful to watch the prusik and ensure that it grabs and hold the load.
6. With the rope still in the belay device feed enough rope through to reach the anchor. Tie figure eight on a bight back to the anchor as a backup.
7. Exit the system.



Summary and Expectations

Following this Session, students are strongly advised to practice the ETO procedure at home while holding a mock load. Set up an anchor, hang some weight over a branch or rafter (be as realistic as possible), belay it, then escape. These skills will be formally evaluated at Rock 1 and reviewed again at Rock 2. Unlike many other skills learned in this course, opportunities to perform the sequence do not occur often, so maintaining proficiency is contingent on students periodically practicing on their own. Demonstration of the technique and understanding of its application will be on the exams.

Session 8: Rock Climbing

Class Schedule	
5:50	Check-in
6:00	Introduction and announcements
6:05	Group A: Climbing techniques in gym – Group B: leading on rock
7:05	Group A: leading on rock– Group B: Climbing techniques in gym
8:05	Field Trip Information
8:15	Class dismissed
8:30	All students and instructors out of facility

Required Reading: See "Reading Assignments" – page 12

Required Practice: None

Equipment: Harness, personal safety anchor, locking carabiner, belay size locking carabiner, belay/rappel device, autoblock, (3) double runners, hero loop prusik, Texas Seat Prusik

Purpose and Objectives:
During this session, instructors will discuss nomenclatures of rock climbing such as different disciplines of rock climbing, difficulty ratings, types of holds you may encounter on climbs, and various classifications specific to the Mountaineer trips. Instructors will demonstrate a collection of standard climbing moves in order for students to begin understanding what different techniques are used for. After the demonstration, students will take turns practicing these moves. This lecture plus the text descriptions in Freedom of the Hills is considered only an introduction to be supported by practical experience at field trips and through individual practice.

Topics

Terminology

- Route
- Pitch
- Single Pitch
- Multipitch
- Approach
- Top Rope
- Sport/Bolted
- Trad
- Front Country
- Backcountry

Disciplines

- Alpine rock climbing
- Crag rock climbing
- Bouldering

Climbing Techniques

- Jamming
- Smearing
- Crimping
- Stemming
- Back stepping
- Lie backs

- Stances
- Mantling
- Straight arms and legs
- Twist reach

Resource Guide for Conservation Service

The Mountaineers
7700 Sand Point Way NE
Seattle, WA 98115
206.521.6000
www.mountaineers.org
Consult the current issue of The Mountaineer magazine for conservation activities. Listings can be found in the Climbing Section, the Trail Maintenance section, and other branch sections.

Washington Wilderness Coalition
305 North 83rd Street
Seattle, WA 98103
206.632.8638
www.wawild.org
Involved in wilderness, rivers, mining, grazing, and other public land issues.

Washington Trails Association
705 2nd Avenue Suite 300
Seattle, WA 98104
206.625.1367
Protecting and enhancing existing trails, increasing funding for trails, preventing overcrowding on trails and user conflicts, and protecting wilderness areas.

Mt. Rainier National Park Associates
www.mount-rainier.org
volunteer@mrnpa.org
Protecting Mt. Rainier National Park. Schedules several work parties each summer to clear and repair trails.

Wilderness Volunteers
http://www.wildernessvolunteers.org
The Wilderness Volunteers lead a variety of volunteer service trips across the country in partnership with local, state and federal land agencies.

Wilderness Society
720 3rd Ave – Suite 1800
Seattle, WA 98104
206.624.6430
www.wilderness.org
Primarily Federal issues: preserving wilderness and wildlife, protecting America's prime forests, parks, rivers, deserts, shorelines, and fostering land ethics.

Conservation Service Suggestions

- WTA
- Mount Pilchuck Lookout maintenance
- Nation Trails Day
- Washington Climber's Coalition

Summary and Expectations

Students should now have a fundamental grasp of hand, foot and body climbing moves and be ready to begin using them on their own. Specifically, students should practice as much as possible at field trips and outside of class. Safe, top roped environments at climbing gyms, outdoor climbing walls and local crags, under the supervision of experienced climbers are ideal places to learn and practice. Students are strongly encouraged to begin developing their techniques soon, recognizing that practice and repetition is really the only way to learn climbing moves.

Knowledge of commands, following techniques and climbing skills will be covered in the exams.

Field Trip - Rock 1

Field Trip Schedule	
Arrival Time and Location	8:00 AM at The Mountaineers Seattle Program Center
Briefing Time	8:30 AM
Driving Time	25 minutes from Bellevue, 15 minutes from Seattle
Equipment	See Equipment Matrix in the front of this Handbook
Reading Assignment	Review FotH Chapters 9, 10, 11 and 12

Field Trip Objectives:

- Learn and practice basic rock climbing skills
- Practice using anchors and belays
- Practice the emergency tie-off procedure
- Practice rappel techniques

Organization:

This trip will involve rotating in pairs through several stations at both locations. You will be allotted a certain amount of time at each station, so you need to use your time well. Below is a description of each of the stations. Notice that all of the stations involve multiple activities.

- Rock Climbing: You will have to do six routes: a traverse, a crack, three face routes, and a chimney route. The traverse, which is done close to the ground, needs no belay. On all the other routes, you'll work with a partner and take turns belaying each other; you will be expected to use appropriate communication signals. It will be especially important to grab an open rope when one becomes available so that you will have time to finish all the required routes.
- Emergency Tie-Off: You'll be attached to an anchor, belaying a leader who will take a simulated fall. You will then perform emergency tie-off to remove yourself from the belay system to assist the fallen climber.
- Belaying a Leader: You will have an opportunity to practice belaying a leader at this station. Focus will be on proper belay technique, clear communication with leader, and familiarization with standard climbing procedure as demonstrated in Lecture # 4 (reference pages 46-47 of this handbook).
- Rappelling: You will have an opportunity to practice a 30-foot rappel from the North Roof of the Mountaineers Program Center with and without an autoblock. The emphasis will be on anchors, rappel techniques and the safety check. The rappels will be done in a safe, controlled environment with a fireman's belay at the bottom when an autoblock is not being used.

Safety Considerations:

- Helmets must be worn during all activities.
- Belayers will wear gloves.
- Always check and double-check yourself and your partner before you start to climb, belay, or rappel. It needs to become a habit.
- NO ONE will do any un-roped climbing.
- CLIMBING SIGNALS MUST BE USED CORRECTLY AND CAREFULLY. With up to 20 climbers working in a small area, you've got to communicate clearly. Always use names ("Eunice, belay on" or "Ernest, tension") to avoid confusion.
- Remove all rings and watches before doing any rock climbing.
- Belayers: PAY ATTENTION TO YOUR CLIMBER AT ALL TIMES. Keep up with them by taking in or paying out rope as needed, and NEVER LET GO OF THE ROPE WITH YOUR BRAKE HAND. Brake immediately if your partner begins to fall (don't wait to hear "falling").
- Climbers: If you fall, don't grab the rope! Grabbing the rope only leads to banged up hands.

This field trip provides a great opportunity to get a lot of rock climbing practice in a low-exposure situation. You'll always be top-rope belayed so don't be afraid to try difficult moves. It's also a good place to practice falling. Fall on purpose, so the belayer can see what it feels like and you, the climber can see what it feels like. It's a great way to help you and your partner's comfort level.

Mountaineers Program Center Driving Directions

See driving directions for the Fundamentals Field Trip in this handbook.

Midterm

Class Schedule	
5:50	Sign In at The Mountaineers Seattle Program Center
6:00	Introduction and announcements
8:15	Class dismissed
8:30	All students and instructors out of TBD

Required Reading: Review all previous reading assignments

Equipment: Practice rope, all climbing gear, pencil, headlamp and appropriate clothing for outdoor practical

Purpose and Objectives:
Tonight's Midterm will consist of two portions: a written exam and a practical skills test.

This exam covers all of the material we have covered in the course to date. You can expect to be tested on all of the knots that were taught in the course, anchors, the set-up for belays, rappelling, and crevasse rescue systems. Know these things well, since they are crucial to your mountaineering success. We expect that you have mastered them by this point in the course.

Session 9: Following on multipitch climbs

Class Schedule	
5:50	Check-in
6:00	Introduction and announcements
6:05	Procedure for following on multipitch rock
6:30	Group A: Climbing techniques in gym – Group B:
7:15	Group A: leading on rock– Group B: Climbing techniques in gym
8:05	Field Trip Information
8:15	Class dismissed
8:30	All students and instructors out of facility

Required Reading: See "Reading Assignments" – page 12

Required Practice: None

Equipment: Harness, personal safety anchor, locking carabiner, belay size locking carabiner, belay/rappel device, autoblock, (3) double runners, hero loop prusik, Texas Seat Prusik

Purpose and Objectives:
Prior to this evening the students have learned the basic building blocks of belaying, building anchors, knots, etc. This lecture serves to assemble those building blocks into a cohesive and safe flow of climbing/following a lead climber that all students are expected to master in the Basic Course. This lecture plus the text descriptions in Freedom of the Hills is considered only an introduction to be supported by practical experience at field trips and through individual practice.

Topics

Climbing procedure for follower

Scenario: A climber who has no lead skills is at the base of a multi-pitch rock climb with a lead climber. This scenario is typical on basic level rock climbs. Slight variations may exist, depending on climb leader preferences. (Use of climbing signals is omitted for clarity.)

Follower	Leader
1A) Builds anchor. Flakes out climbing rope (leader's end on top of flaked pile). Ties climbing rope to harness and to anchor with clove hitch. Double-checks leader's harness and tie-in.	**1B)** Ties in to climbing rope. Sets omni-directional pro (optional). Double-checks belay anchor. Double-checks belayer's harness and tie-in.
2A) Sets up belay. Belays leader: ▪ Pays close attention to leader ▪ Keeps sufficient slack in rope to prevent leader from being pulled from stance ▪ Feeds more slack when leader is clipping a piece of pro ▪ Takes back in the excess slack when leader has finished clipping	**2B)** Climbs pitch, setting pro as needed.
	3) Finishes pitch. Builds anchor. Ties in to anchor with climbing rope. Calls "off belay" to follower. Pulls up slack rope.

4) Takes leader off belay. Puts runner over shoulders to hold pro as it is removed when following. Tends any rope that is being pulled up by leader.	
	5) Puts follower on belay
6A) Breaks down anchor and stows pieces on shoulder runner and/or harness. Follows the pitch: ▪ Removes pro while climbing ▪ Pull pro first, while keeping it attached to runner and rope ▪ Remove pro from runner and rack it ▪ Remove the runner and carabiner from the rope and rack it ▪ Continues until reaching the anchor	**6B)** Flakes rope in a pile as it is brought up (optional methods employed, depending on stance).
7A) Attaches climbing rope to anchor with a clove hitch and locking carabiner.	**7B)** Takes follower off belay
8A) Transfers to the leader pro that was removed on the previous pitch. Pieces should be transferred one at a time!	**8B)** Re-racks pro in preparation for next pitch
9A) Pancakes flaked rope pile so that rope to leader is coming off the top.	**9B)** Sets omni-directional pro (optional)
10A) Puts leader on belay.	**10B)** Removes personal anchor and rope tie-in to belay anchor and leads the next pitch.

Notes:

- An omni-directional pro placement (often referred to simply as an "Omni") is often used as the first piece of pro on a pitch. This type of placement typically uses two pieces of pro placed in opposition in order to keep the pro from pulling out no matter which direction force is placed upon it. Pro placed after this first piece normally consists of one piece oriented only to take downward force. If the pitch starts at the ground or from a wide ledge, many leaders do not set an omni-directional pro placement as the first piece.
- If the belay stance between pitches is on a wide ledge, the rope is normally just flaked into a neat pile. Upon arrival at the belay stance, the follower's rope will be coming off the top of the pile. This has to be reversed before the leader starts the next pitch so that the leader's rope is coming off the pile. This is done by simply lifting the entire pile of rope and flipping it over. This is called "pancaking". If the belay stance is on a narrow ledge (or no ledge - a "hanging belay"), then the rope may be looped back and forth across the anchor or secured in an alternate method (rope hooks, etc.) to keep it organized.
- Extreme care must be employed when belaying a leader. You cannot keep tension on the rope as it will make it difficult for the leader to make moves. However, you don't want too much slack, in case the leader takes a fall. Be aware when the leader is preparing to clip a piece of pro or make a move that might require feeding out more slack. Reel back in unnecessary slack once the pro is clipped or the move is made. If a piece of protection below a leader falls out, make reasonable efforts to notify the leader.
- Leaders frequently climb out of voice contact. Prior to every pitch, the belayer and leader should agree on communication methods in the event they cannot hear each other.
- A follower should never climb past the belay. This includes failing to unclip the rope from protection, and traverses which expose the climber to a pendulum fall.
- Rope drag on wandering routes can be severe, talk to the leader before the climb and be prepared to recognize and adjust to the effects of rope drag.

- Don't burn daylight; become proficient at all actions.
- The scenario described here is for a one leader to one follower ratio. In basic climbs, one leader may have two or three followers. In such a scenario, the first follower may belay up the second follower before belaying the leader on the next pitch (depending on amount of room at belay stance). This type of scenario mandates that even more attention be paid to rope management at the belay stance. Many climb leaders try to avoid a ratio that is greater than one leader to one follower.
- If there is more than one follower on a pitch, the first follower will typically be "dragging" a second rope with them that will be used to belay the second follower. This second rope is tied into the first follower's harness in the same way as the rope they are being belayed with. This can cause some crowding in the harness! Optionally, some climb leaders allow followers to tie the second rope in with alternative methods which can be less secure. If the second rope becomes detached while following, the first follower would have to rappel back to the second follower, reattach the second rope to their harness and climb the pitch again. So it is important to make sure that the second rope is secure the first time when following the pitch!
- If there is more than one follower on a pitch, the leader may direct the first follower to leave certain pieces of pro in for the second follower to remove. This is typically done to protect the second follower on traversing moves on the pitch.
- If the pro is left in, the first follower will need to "clip through" the pro. This means the rope between the first follower and the belayer (leader) is unclipped from the pro placement and the rope between the first follower and the second follower (the rope being "dragged") is clipped into the pro placement. Be sure to unclip the rope between you and the belayer or you will set up a pulley and will not be able to proceed very far!

Session 10: Safety & Expedition Behavior

Class Schedule	
5:50	Log into Zoom
6:00	Introduction and announcements
6:05	Safety & Breaking the Halo
7:00	Expedition Behavior
8:05	Rock 2 Primer
8:15	Class dismissed
8:30	All students and instructors off Zoom

Required Reading: See "Reading Assignments" – page 12. Also Accidents in North American Climbing 2019 – Rappel Anchor Failure, Mt Rainier, Dewey Peak

Required Practice: None

Equipment: None

Purpose and Objectives:
This session will introduce three inter-related topics: packing wisely, nutrition and risk management. At this stage of the Basic Course, students have completed their first field trip where gear was packed in to camp rather than camping adjacent to the car. Students are now in a position to evaluate the utility, efficiency and comfort of their preparation and packing techniques against the suggestions presented in this lecture. Again, having had a taste of what a basic climb approach may entail, the issues of emergency preparedness and responses are timely. These materials are intended to be part of an ongoing awareness training for prevention of or appropriate response to adversities related to climbing and wilderness travel.

Following the death of a climbing student in 2018 (on a non-Mountaineers climb), Katja Hurt and a small group of climbers uncovered several contributing thinking errors and a need to better prepare and empower students to confront heuristic traps. Based on her Lecture-turned-book, "Breaking the Halo", this lecture will also cover a simplified approach to confronting complacency, assumptions, and communication breakdowns in outdoor education and beyond. We will also cover 10 principles of Good Outdoor Expedition Behavior that are fundamental to making the expedition experience a good one for all in the party.

Topics

Packing Wisely

I. Weight - how much should your pack weigh?
   a. Do not reduce the 10 essentials or the additional trip specific requirements
   b. Maximize use and flexibility of what you carry so that light weight gear performs multiple tasks and thus reduces overall weight
II. Pack features and organization
III. Packing process
   a. How far ahead do you pack?
   b. Evolving process
   c. Weigh items and pack
   d. Use a checklist
   e. Pack by exception?
   f. Review pack after trips & annually

Nutrition and Hydration

I. Nutrition
   a. Dietary considerations
   b. Total calories
   c. Increase carbohydrates with activity
   d. Fat training
   e. Extreme climbing
   f. Vegetarians
   g. Women's vs. men's needs

II. Hydration/Dehydration
   a. Maintaining hydration is critical to health and performance
   b. Symptoms of dehydration:
      i. Loss of muscle strength
      ii. Decrease in stamina
      iii. Headache
      iv. Malaise
      v. Reduced or impaired cognition
      vi. Crankiness

III. Water Treatment
   a. Diseases
   b. Treatment techniques
   c. Filtration
   d. Chemical (e.g., Micropur – chlorine dioxide)
   e. Boiling

Risk Management

I. Practice Safe Climbing
   a. Seek to prevent emergency conditions through proper knowledge, skills, equipment
   b. Adhere to the Climbing Code
   c. Maintain hydration
   d. Set a reasonable pace
   e. Maintain situational awareness
   f. Keep together as group
   g. Keep options open
   h. Improve your situation
   i. Ensure you are on route
   j. Don't waste daylight
   k. Don't talk while harnessing, tying-in
   l. Don't talk while roping your rappel device

II. Communications
   a. Personal Locator Beacons (ACR 406 Mhz GPS PLB, SPOT Messenger)
   b. Cell phone
   c. FRS/GMRS
   d. CB
   e. Marine
   f. Ham
   g. Consider license, line of sight vs. "bounce", repeaters, power, range, which 911, battery life & type, emergency channel
   h. Phone numbers:
      i. 206-526-6677 avalanche
      ii. 360-569-2211, 2, 1 Mt. Rainier weather

i. Emergency contact
    i. Responsible person at home
    ii. Trip member contacts
    iii. Foothills Climbing Committee
    iv. Mountaineers emergency number: 206.521.6030
j. Trip itinerary
    i. Leave with your emergency contact
    ii. Being overdue is common
    iii. Instruct that emergency response not be initiated until next day noon

III. If lost:
- a. Itinerary becomes critical for response
- b. Retrace steps if possible
- c. Don't move if route back uncertain
- d. Stop before exhaustion
- e. Avoid/manage panic
- f. Leave sign (cairns, boot prints, TP, broken vegetation)

IV. Search and Rescue Responsibilities
- a. In Washington:
    i. County sheriff
    ii. NPS
    iii. Fire department -roads, quick response
- b. Costs: none

V. Messages to Outside Responders
- a. Location!
- b. Injury seriousness
- c. Reporting party
    i. Stay in touch, stay at SAR base
- d. Written via courier?
- e. Radio frequency, cell phone number
- f. Mountain Rescue needed?
    i. Technical access, raising, lowering, highline?
    ii. Helicopter?
        1. Landing zone, weather
- g. Number in party
- **h.** Emergency notification (home front)

Role of the Emergency Contact

On Mountaineers trips you'll often be asked to specify an emergency contact. This is not only the person who should be notified in the event of an emergency, but this person will also be charged with specific responsibilities in the event of delay. In short, this person will be a lifeline in case you need one.

Set appropriate expectations with your emergency contact and family. Alpine mountaineering trips are often unpredictable. It is not uncommon to return to the cars in headlamps well after nightfall, and unplanned overnight bivouacs can happen. That doesn't necessarily mean the party needs assistance, but it's nice to know that there are contingencies in place in the event one needs them.

Your emergency contact should be aware if you don't check in via phone or return home. There's no need to panic, however. You're probably just running late as is often the case with Basic climbs, or your party has possibly stopped off for pizza and beer on the way home and you may be out of cellular phone coverage. There's no need to worry, yet.

If still no word by morning, something has happened. It doesn't necessarily mean assistance is required; the party may be making their way out under their own power, but now is the time for your Emergency Contact to start making some phone calls and inquiring with others. If the trip leader is diligent, the names and contacts of the other climbers, their emergency contacts and a designated central point of contact in the event of emergency (probably the trip leader's own

emergency contact) will have been circulated. If these arrangements weren't made, your Emergency Contact should feel free to start calling members of the Foothills Branch Climbing Committee. Those numbers are published at the front of this handbook.

If there's still no word from any in the party by late morning, it's time to call for help. Typically, the county sheriff will have jurisdiction for Mountain Rescue, but this is not always the case especially if within the bounds of a National Park. If a call is made to 911, the caller will need to specifically request routing to the appropriate party charged with Mountain Rescue.

The Seven Steps in Accident Response

Take charge of the situation	The climb leader is in charge of the entire group's welfare and any evacuation efforts; the first-aid leader is in charge of the first-aid effort.
Approach the patient safely	Protect the patient from further injury, and protect the party by choosing a safe approach to the patient.
Perform emergency rescue and urgent first aid	The first-aid leader directs moving the injured person to a safer location if necessary and conducts a primary examination to identify and treat potentially fatal conditions. The first-aid leader checks ABCD (airway, breathing, circulation, deadly bleeding) and administers CPR if needed.
Protect the patient	The first-aid leader is alert for the signs and symptoms of shock and provides insulation, dry clothing, pain management, and psychological support, including reassurance and sensitive care.
Check for other injuries	The first-aid leader conducts a thorough secondary examination and records findings on an accident report form.
Make a plan	The climb leader decides how best to evacuate the injured person.
Carry out the plan	Keep the needs of the patient in mind and constantly monitor the patient's condition and the progress of the plan.

Breaking the Halo

I. What is 'Halo'?
   a. Origin
   b. Research
II. Different Types of Halos
   a. Leader
   b. Badge
   c. Cairn
   d. Backpack & Helmet
   e. Halo in the Mirror
III. Breaking the Halo

Expedition Behavior

IV. What is Expedition Behavior
V. 10 Principles
   a. Self Awareness
   b. Self Leadership
   c. Selflessness
   d. Commitment

e. Tolerance
f. Consideration
g. Trust
h. Communication
i. Humility
j. Sense of Humor

Summary and Expectations

Students are expected to apply the information on packing and nutrition to improve their overall performance and utility as a team member on basic climbs. Being properly equipped and proficient in maintaining physical condition and readiness is a fundamental expectation on all climbs as well as the remaining Snow 2 field trip. Improvement in packing problems or issues relating to maintenance of physical condition noted at Snow 1 is highly advised prior to Snow 2. Regarding the handling of emergency conditions, students should be knowledgeable in the general procedures used in Mountaineers climbs and be prepared to provide assistance as a team member whenever circumstances dictate.

Field Trip - Rock 2

Field Trip Schedule	
Arrival Time and Location	7:00 AM at Eightmile Campground
Briefing Time	7:30 AM
Driving Time	2½ to 3 hours from Bellevue/Seattle
Equipment	See Equipment Matrix in the front of this Handbook
Reading Assignment	Review FotH, Chapters 9, 10, 11 and 12

Field Trip Objectives:

- Apply skills learned at Rock 1 in climbing situations with more realistic exposure.
- Become able to set up anchors, belays, and rappels with little or no assistance.
- Learn to properly "follow" a pitch that has been lead climbed.
- Display STRONG proficiency with ALL knots, and communication skills.
- Develop good belay technique and rope management skills
- Demonstrate correct communication signals

Organization:

This is an overnight field trip. We normally reserve the group camping area of the Bridge Creek campground in Icicle Canyon for our students and instructors on Saturday night. Bring your camping gear and plan to stay there. Also be sure to bring your own eating utensils, plates, etc. as none will be provided. Please also be sure to bring trash bags for all trash as this is a "***pack it in, pack it out***" event. The group area is located through the gate at the back of the Bridge Creek Campground. Do not take one of the regular individual sites outside of the gate.

Icicle Canyon has a number of excellent, easily accessible practice cliffs that are ideal for rock climbers from beginner to expert. We will have groups working at four different areas throughout the weekend. Normally, we set it up so that you spend a half-day on any one particular area, and by the end of Sunday, everyone will get to experience a total of four different areas in the canyon. On or before Saturday, you will be divided into groups. You may or may not stay with your original group, so plan your gear and lunch accordingly. At the end of Saturday, everyone will gather at the Bridge Creek Campground for a wrap-up and critique the day's activities. You are free after that, until we reassemble Sunday morning at the Campground.

Saturday (Activities included in the Saturday schedule are as follows):

- Organizational meeting at Eightmile Campground; break into groups, and assign instructors.
- Climbing practice at various areas.
- Station rotation. Move on QUICKLY to your next assigned area so you don't waste valuable practice time.
- More climbing practice. Be sure to wrap up on time so that everyone isn't waiting on your group for the wrap-up talk.
- Wrap-up and critique the day.
- Check out Leavenworth, or hang around the campground for an excellent BBQ –bring something to share, the Climbing Committee will provide the meat and veggie burgers.

Sunday:

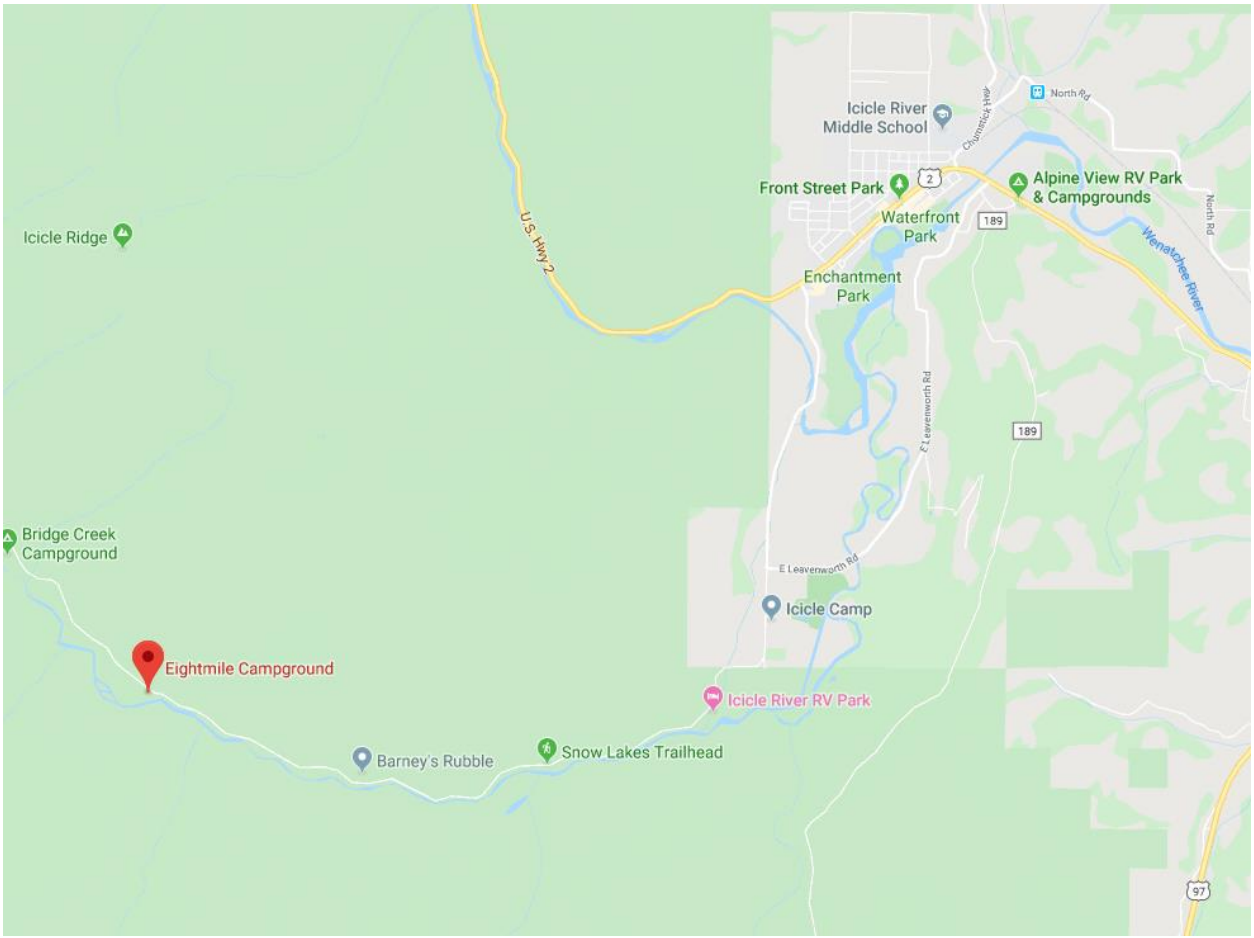
- Organize at the Eightmile Campground. You will want to pack up your campsite, since we won't be returning to the campground afterwards.
- Practice climbing.
- Rotate to next area for more practice.
- Wrap-up and critique at Barney's Rubble Parking Lot.

Safety Considerations:

- Absolutely no un-roped climbing by any student or instructor. All climbing must be belayed.
- All persons must wear helmets at all times while at the climbing areas.
- When rappelling and belaying, you must wear gloves.
- Loose rocks are an ever-present hazard. Be careful not to cause rockfall, especially when people are below. Warn others by loudly yelling "ROCK" whenever necessary.
- Check and double check anchors, belay set-ups, rappel set-ups, and harness tie-ins.
- Belays will be provided on request for all rappels.
- There are ticks and rattlesnakes in the area – BE ALERT!

Bridge Creek Campground Driving Directions

- Take Highway 2 east to Leavenworth, about 83 miles from Monroe
- At the west edge of town, turn right (south) onto Icicle Road
- Follow Icicle Road 8.0mi
- Turn left at the Eightmile Campground Sign
- Before crossing the river, turn left into the Bridge Eightmile Campground.
- The group area is through a gate at the back of the campground.



Session 11: Avalanche Safety & Snow Travel

Class Schedule	
5:50	Log in to Zoom
6:00	Introduction and announcements
6:05	Avalanche Safety
7:05	Break
7:20	Snow Travel
7:40	Snow Camping
8:10	Field Trip information
8:15	Class dismissed
8:30	All students and instructors off Zoom

Required Reading: See "Reading Assignments" – page 12

Required Practice: None

Equipment: None

Purpose and Objectives:
This lecture addresses three topics, avalanche safety, snow travel and camping on snow. The first lecture, avalanche safety, will focus on avalanche awareness and avoidance. It will discuss how snow avalanches work, warning signs to look for, terrain selection to minimize exposure, and what to do if an avalanche occurs. This lecture plus the assigned readings and field exercises are only a primer to the topic. Snow travel will briefly introduce equipment, anchors, belays commonly used in snow travel. Camping on snow will address two topics: tips on comfort when camping on snow and construction of emergency snow shelters, specifically the "T-entry" snow cave. The upcoming field trip will be discussed.

Topics
Avalanche Safety

I. Statistics
II. Types of avalanches
III. Evaluating Avalanche Hazard
    a. Terrain
    b. Snow pack
    c. Weather
IV. Preparing for a Trip
    a. Take a class
    b. Read additional books
    c. Determine route
    d. Check weather & avalanche forecasts
    e. Human factors
    f. Prepare for emergencies
    g. Decide whether to embark on trip or not (speak up!)
V. Skills in the Field
    a. Observe snow conditions
    b. Look for signs of snow instability
    c. Decide whether to continue on trip or not (speak up!)
    d. Choosing the route
    e. Equipment
    f. Surviving an avalanche
    g. Rescue

For more information, take the Mountaineers' Avalanche Course.
Suggested reading:

- Snow Sense by Jill Fredston & Doug Fesler
- Staying Alive in Avalanche Terrain by Bruce Tremper

"*There is no such thing as too much avalanche education.*" (Freedom of the Hills)
"*There is no such thing as an avalanche expert.*" (Ken White)

Snow Travel

I. Equipment
   a. Trekking poles
   b. Ice axe
   c. Crampons
   d. Snowshoes
   e. Avalanche transceivers
   f. Wands
   g. Shovels
II. Anchors
   a. Picket
      i. Vertical orientation
      ii. Vertical mid-clipped orientation
      iii. T-Slot
   b. Ice axe
   c. Stuff sack
   d. Bollard
III. Belays
   a. Sitting hip belay
   b. Anchored sitting hip belay

Camping on Snow

I. Winter environment
II. How to stay warm and comfortable
III. Sleep system on snow
IV. Importance of emergency shelters
V. "T-entry" snow cave

Summary and Expectations:

Students are introduced to avalanche awareness and avoidance. They should understand that avalanche conditions are complex and that most that fall prey are victims of being overconfident in their skills and underestimate the danger they expose themselves to. When traveling on snow, the most conservative path practical should be followed. If an avalanche does occur, safety of the remaining party is paramount. If rescue is to be attempted, you are the subject's only chance for survival. Leaving the scene is condemning the subject(s) to a body recovery. Students are expected to know the basics covered in this lecture and in the assigned reading.

The Snow Travel and Camping on Snow lectures are primarily informational. It is intended to prepare students for the Snow 1 and Snow 2 Field Trips. Students will camp in tents on snow at the Snow 1 and Snow 2 field trips.

Field Trip - Snow 1

Field Trip Schedule	
Arrival Time and Location	7:00 AM at Summit of Snoqualmie West
Briefing Time	7:30 AM
Driving Time	1 hours from Seattle, 50 minutes from Bellevue
Equipment	See Equipment Matrix in the front of this Handbook
Reading Assignment	Review FotH Chapters 3, 16, and 17

Field Trip Objectives:

- Learn and practice fundamental snow travel techniques.
- Begin to develop avalanche safety awareness.
- Learn and practice ice axe arrest techniques.
- Construct a safe snow shelter (if conditions allow).
- Practice using snow anchors and belaying techniques.
- Practice putting on and walking around in crampons.
- Learn fundamentals of roped travel on snow, including team arrest.
- Introduction to crevasse rescue.

Organization:

At the end of Lecture 6, you will divide into groups of 4-6 students for sharing group camping and climbing gear. Each group will receive a certain number of ropes. You'll get this gear ahead of time so you can organize your pack at home before the trip.

Saturday

At the parking lot, we'll have an organizational briefing before starting out. Help us get the day underway by having your entire group ready to go at 7:30 am. After the briefing, we will hike into the field trip area. Expect to gain over 1000 feet of elevation. On the hike in, you'll be practicing basic snow travel techniques such as the kick step, the rest step, ice axe use, and terrain awareness. You'll also want to give attention to avalanche safety issues, such as avalanche paths, cornices, and general snow conditions. Once at camp, your instructors will go over snow cave construction, and you will spend several hours constructing your shelter. Sometime during the afternoon there will be demonstrations on anchors & Z-pulley systems and an avalanche station. You will have time to work in your groups setting up various crevasse rescue systems, and learning anchors and belay systems.

Sunday

The first activity on Sunday morning will be to put on your crampons and walk around. Crampons work best in hard snow, and since the snow is hardest during the early hours of the day we try to get this exercise in before 8:00 am – so be prepared when your instructors come calling for your group to get moving. Ice axe arrest, team arrest, and roped team travel will be the focus for the remainder of the day. Remember, safety first! Also, be aggressive. When ice axe arrest is needed, urgency is paramount and arrests should be a reflex. The field trip exercises will wrap up sometime around mid-afternoon so that everyone can pack up camp and hike back to the parking lot by 5pm. We will have a wrap-up and critique session at the end of the day.

Safety Considerations

- Helmets must be worn during ice axe arrest practice and snow belay practice.
- At this time of year, the lower slopes of the ski area have a rapidly thinning snowpack. Beware of weak snow bridges lying over streams, ditches, or logs.
- Work with your instructors to gain a good understanding of the current level of avalanche danger.

- Ice axes can be dangerous. Before the field trip, wrap multiple layers of duct tape around the three points of your ice axe. When doing ice axe arrest, keep the axe under control with both hands at all times.
- In some activities you will have to simulate a falling climber (team arrest, snow belays, and anchors). Be sensible and stay in control. If you run downhill like a stampeding elephant, you can injure the belayer, the arrestor, or yourself.
- Snow shelters can be a hazard if improperly constructed. Work on your shelter carefully, and check with your instructors if anything doesn't seem right.
- Glissading is a fun activity, but you can easily get carried away and do things that seriously compromise your safety. Be careful, and stay in control.

Snow camping considerations

- Remember to please use the "blue-bagging" method for keeping your waste off the mountain.
- Temperatures up on the snow can fluctuate wildly. Always keep enough clothing with you to stay warm and dry.

This field trip provides a great opportunity to learn snow camping, snow travel, and the ever-important self and team arrest using the ice axe. The importance of self-arrest cannot be overstated. Take this opportunity to master this skill as it could save your life or that of your climbing buddy.

Snow 1 will focus on the fundamentals of traveling on snow, which include ice axe belay techniques and snow anchors. You will use ice axe belays and snow anchors at both snow field trips.

Ice Axes

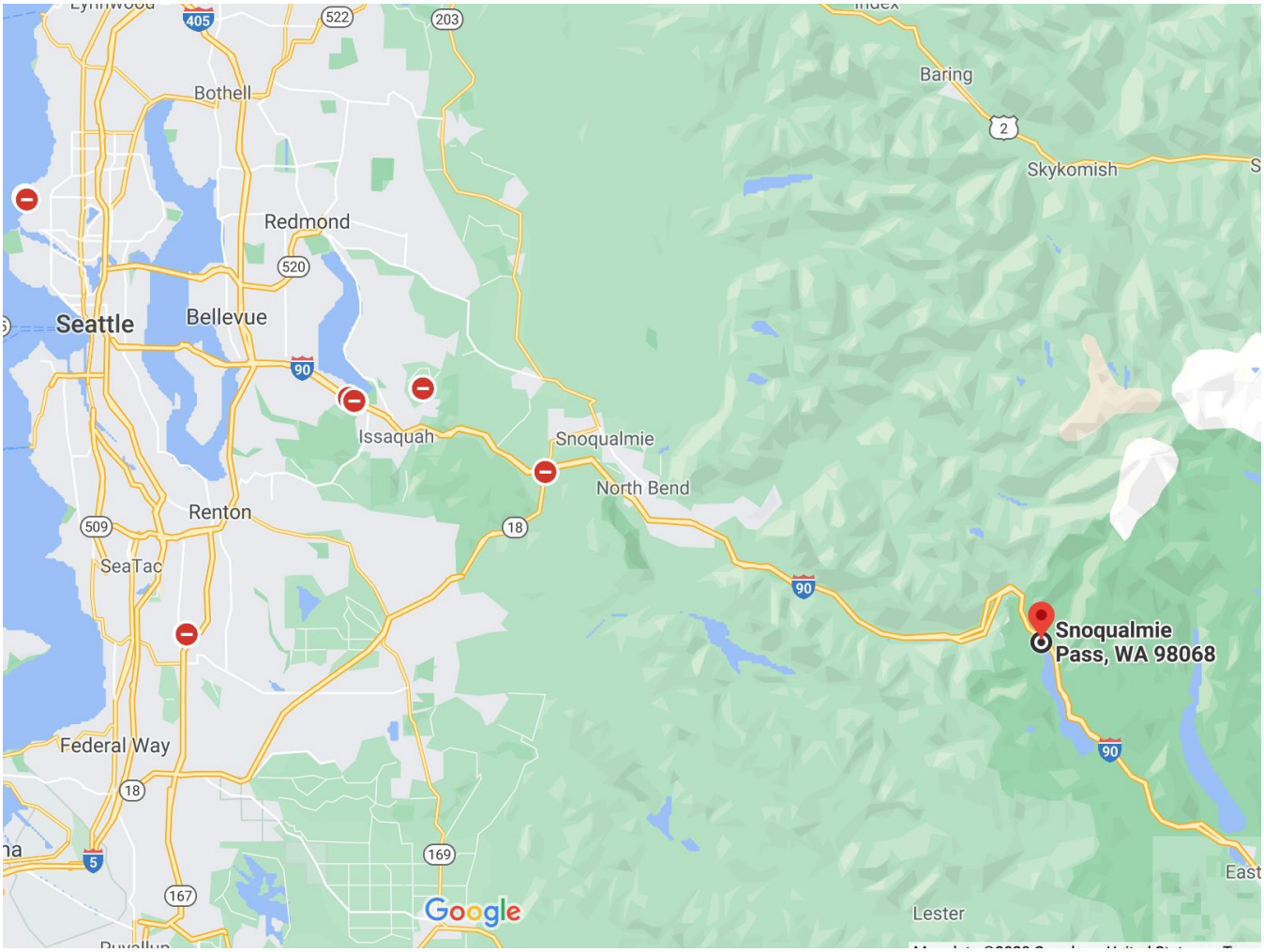
When selecting an ice axe for this course, a length between 60-75cm will work best for most people. If you are unsure what length to purchase, rent an ice axe for the first snow field trip. At the field trip, try out different lengths with your classmates. Verify with a qualified instructor on different leash options. Leashes are required for Snow 1 and Snow 2. Avoid purchasing the shorter technical ice axes or ice climbing axes. Stick with a basic mountaineer ice axe.

Hip Belay

The hip belay is a useful technique to know for setting up a quick belay without using a belay device or the Münter hitch. In FotH the climber demonstrates the correct technique. Notice how his anchor is on the opposite side of his brake hand!

Summit East at Snoqualmie Pass Driving Directions

- Take I-90 East to the top of the pass, about 49 miles from Bellevue
- At the summit, take Exit 52 and turn right. It is the first ski resort on the right


Bothell
Redmond
Seattle
Bellevue
Issaquah
Snoqualmie
North Bend
Renton
SeaTac
Federal Way
Baring
Skykomish
Lester
Snoqualmie
Pass, WA 98068
Google

Session 12: Glacier Travel & Crevasse Rescue

Class Schedule	
5:50	Sign in to Zoom
6:00	Introduction and announcements
6:05	Glacier Travel
7:05	Break
7:15	Crevasse Rescue
8:00	Google Earth mapping demo, NOAA weather forecast demo
8:15	Class dismissed
8:30	All students and instructors off Zoom

Required Reading: See "Reading Assignments" – page 12

Required Practice: 2:1 C-Drop Loop Setup; 3:1 Z Pulley Setup

Equipment: Practice rope, harness, personal safety anchor, (3) locking carabiners, belay size locking carabiner, (2) non-locking carabiners, (2) double runners, prusik, hero loop prusik, Texas Prusiks, chest harness, prusik-minding pulley.

Purpose and Objectives:
This lecture is intended to present techniques and safety considerations for travel on glaciers and crevasse rescue procedure. Students should consider this a primer covering standard techniques for typical scenarios. Circumstances can be expected to change in the field and the intention here is to provide a starting point from which subsequent judgments may be made. Included in the glacier travel segment are topics relating to glacier morphology, standard glacier equipment and glacier travel fundamentals. To a lesser extent, skills used at the Snow 1 Field Trip are reviewed, such as ice axe usage, basic crampon technique and steep snow travel. Special consideration should be given to safety considerations in and around crevasse zones. With regard to crevasse rescue, two fundamental systems for a single rope team of 3 will be presented. In the field, these systems can be modified and/or combined as circumstances dictate; when a second rope team is available, or when trying to maintain protection for rescuers. However, students are expected to become proficient by the end of this course with only one of the two systems of their choosing, for which they will be tested during the Final Exam. Upcoming field trip will be discussed.

Topics

Glacier Travel

1. Setting up the rope
    a. Distance between climbers (interval) should be at least greater than the widest crevasse the team plans to cross. In the PNW, this is roughly 10meters (30ish feet)
    b. On a rope, find the center and tie a butterfly
    c. 10 meters from the center, tie butterfly on each side of the rope
    d. End climbers
        i. Tie into rope with rewove figure 8.
        ii. Coil rope until 2 feet from butterfly.
        iii. Tie off coil with "belay hitch overhand".
        iv. Clip butterfly to belay loop with large tri-locking carabiner or a locking carabiner and a non locker, gates opposite and opposed.
        v. Attach Texas Prussik system to rope with chest prussik above (towards middle person) and the Texas Prusik below (towards climber)
    e. Middle climber
        i. Clip butterfly to belay loop with large tri-locking carabiner or a locking carabiner and a non locker, gates opposite and opposed.
        ii. Attach Texas Prussik system to rope with chest prussik on one side of the rope and the Texas Prusik on the other
2. Rope management

   a. No slack between team members
   b. Rope always stays on the downhill side (unless clipping through pickets)
   c. Do not step on the rope (especially with crampons!)
   d. Special scenarios
      i. Crossing a crevasse
      ii. Changing directions (zigzagging)
      iii. Cresting a rise with other rope team members behind you
   e. When crossing a crevasse, clip rope through chest harness. Once through, unclip rope
   f. Under no circumstance will you ever come out of the rope until you are on solid terrain (rock) or crevasse free terrain.
      i. Breaks are taken spaced out in full extended intervals
      ii. You'll go to the bathroom with your harness on and ice axe near by
3. Travel Commands
   a. Crevasse! (while pointing in the direction of the crevasse)
   b. Crossing! (while someone is crossing, climbers on same rope should hold ice axes up right and be prepared to arrest)
   c. Through or Over! (indicates person has crossed the crevasse or picket)
   d. Clipping! (you're at a picket and you're passing a knot through)
   e. Falling or AAHHHhhhhhhhhhh (you fell in a crevasse)
   f. ROCK ROCK ROCK or ICE ICE ICE or AVALANCHE – something bad is coming
4. Detecting crevasses
   a. Terrain hints (e.g. change in slope, depressions)
   b. Shadows
   c. Probing w/ice axe

Crevasse rescue principles and overview

- In any scenario, you need to build a reliable anchor. At a minimum, it will have to support the weight of the subject. With pulley systems and dynamic loading, it will have to hold multiple times the subject's weight.
- The description below is one of many possible solutions, but it is the one method that is taught and used by the Foothills Branch for the BAC.
- We are assuming a rope team of 3, with no assistance. (However, the climbing code calls for 2 rope teams of 3 on all basic glacier climbs.)
- The two rescuers must always be self-belayed, or otherwise tied-in to the anchor system.
- Build everything with pieces of gear directly from your harness. Never lay any gear in the snow.
- Prusik knots can slip. Whenever feasible, back up prusiks using a figure-8 on a bight clipped to a locking carabiner through the anchor power point.
- This scenario assumes that the middle climber (#2) can hold the subject, while climber #3 builds and anchor.
- This scenario describes how (1) C-Drop Loop 2:1 and (2) Z Pulley 3:1 systems will be set up. If the subject self-rescues during set-up, nothing is lost.
- It is also assumed that the subject is conscious and able to assist climbing over the lip of the crevasse. If not, the problem is beyond the scope of this exercise. We do not cover lowering or rappelling down to the subject to render first aid, clip into chest harness, etc.
- It is assumed that each climber is carrying a prusik-minding pulley (required for the BAC). These pulleys prevent jamming when a prusik knot is pulled into the pulley. Without a prusik-minding pulley, one rescuer needs to prevent the prusik from reaching the pulley.

C-Drop Loop vs. Z Pulley – Advantages

C-Drop Loop 2:1 Advantages

- C component is easier to understand and construct.
- Faster to construct if able to haul on just the C 2:1 system.

- Doesn't require resetting when hauling.
- Uses less gear if able to haul on just the C 2:1 system.
- Easier to deploy and use when climbing with knots in the rope between climbers to assist in arresting the fall (if you have sufficient rope to travel with coils). This is a significant disadvantage when using the z system on a rope with knots.
- Easier to pad the lip and don't need to deal with entrenched rope. (accept to keep it taunt (no slack) when hauling)
- When use with a Z 3:1 system, provides 6:1 mechanical advantage and may allow a single person to pull another person out of the crevasse.
- It is possible for the subject to help in the hauling process.

Z Pully 3:1 Advantages

- Better mechanical advantage and easier to pull a person out with a smaller team. If there is just one team, some type of mechanical advantage beyond the C 2:1 system will likely need to be used and the Z 3:1 is the most often used for that.
- It requires less rope than typical C 2:1 system. No carried coils or stashed rope needed. C 2:1 system may require an extension to reach the fallen climber (a sling extends the rope 2x the length of the sling). When using a sling to extend the rope, it is recommended to transfer fallen climber back to the rope when they have been raised enough as getting the extended sling over the lip is challenging.
- Easier to capture progress (tend). Adding a tending prussik is an integral part of the Z system and it isn't ever really constructed without it. Adding progress capture to the C system is added at the end not as integrated and is challenging to manage when hauling without a dedicated tender.
- Z 3:1 system can be built and deployed without any interaction with the fallen climber.
- Z 3:1 system has been taught in the mountaineers for many years.
- Climbers are more likely to use a Z 3:1 hauling system in other areas of climbing than a C 2:1 hauling system. Here are a couple of examples:
    - Helping a follower with a Z 3:1 haul when belayed from above to get past a difficult section.
    - Rope rescue scenarios.
- The Z **3:1** is the standard system used more often in rope rescues.
- It is easy to convert to a higher mechanical advantage system.

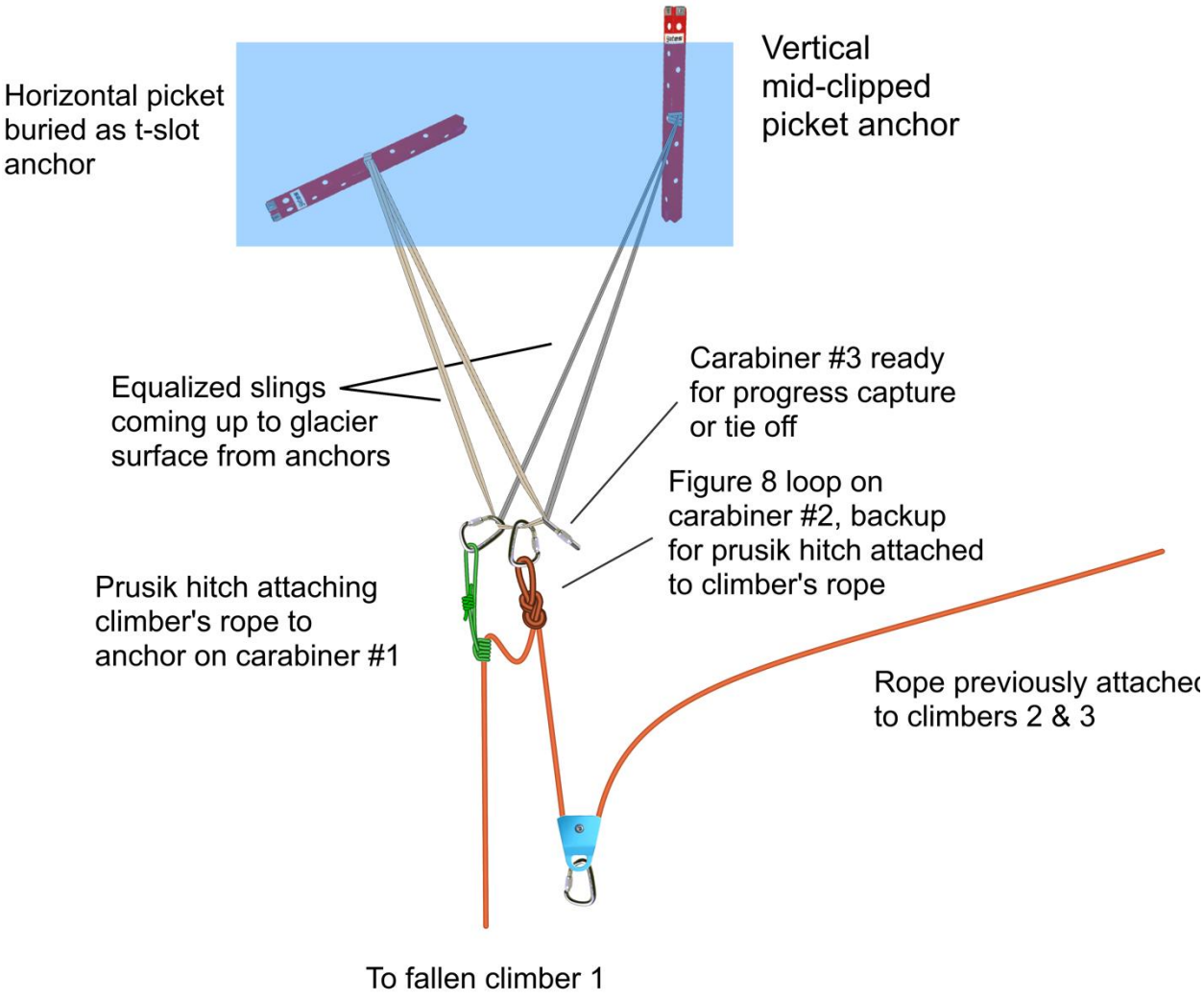
Here we have a situation in which climber #1 has disappeared into a crevasse, with climbers #2 and #3 in self arrest, holding climber #1.

C-Drop Loop 2:1 System Setup Step-by-Step

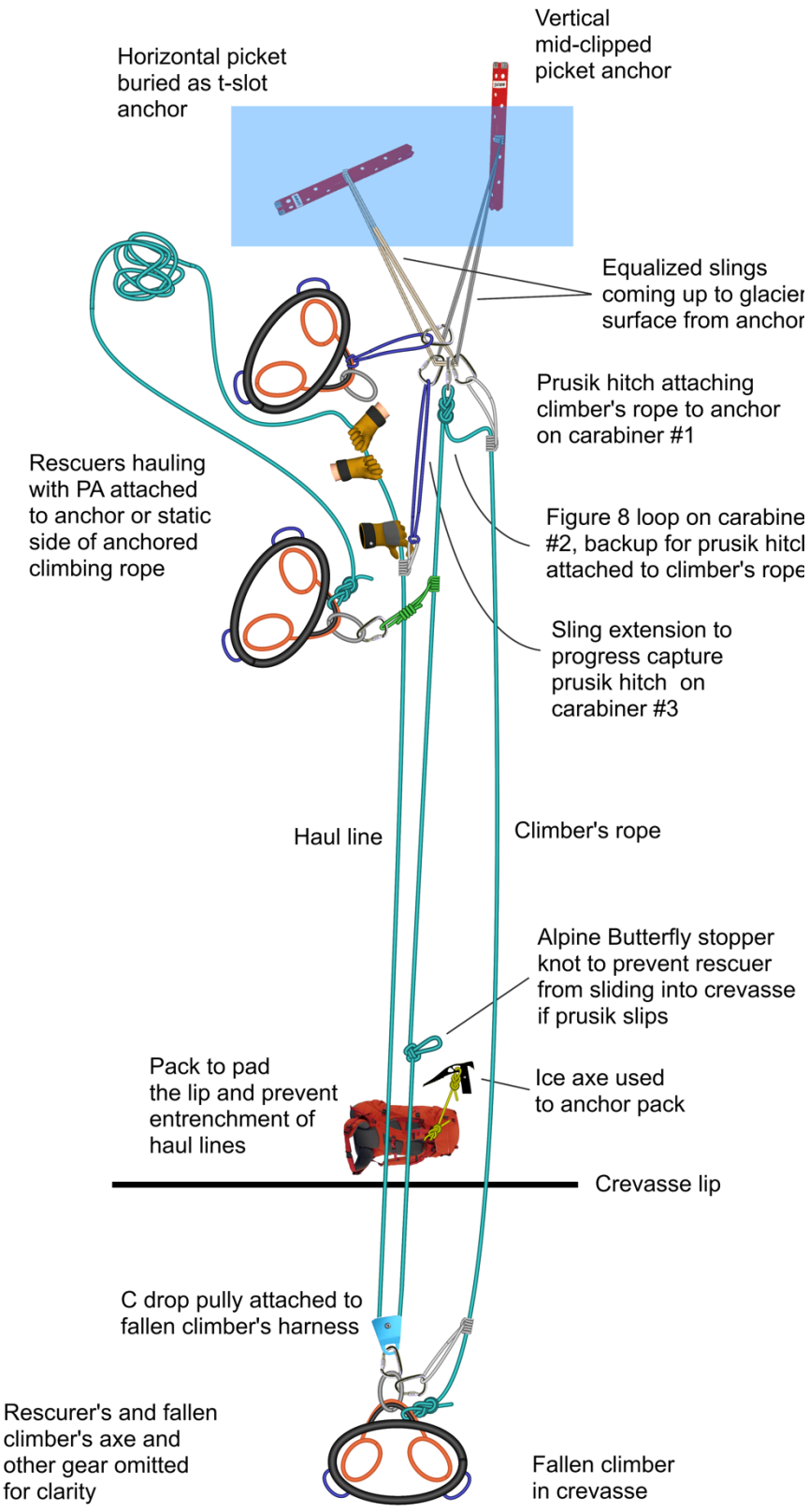
1. 3rd climber sets up a secure anchor system
    a. Gets equipment off of 2nd climber as needed. 3rd climber will need 2 locking carabiners, 2 pickets, 1 prusiks
    b. Prusiks down the rope and probes to anchor location
    c. Located between 2nd climber and crevasse lip, ideally 6' past 2nd climber
    d. 1 picket anchor built as a vertical midclip, 1 buried as T-Slot anchors (dig with adze)
    e. Double runners from picket to top of snow if the picket does not have cables
    f. Runners/cables equalized along direction of rope pull. Power point is under the rope. This is because the weighted rope may lift off the snow surface and because if the anchor is built above the rope, the system will loop around the anchor and not work. Once the anchor is built, the climber should PA into the power point.
    g. 2 locking carabiners through anchor power point (the 2 runners), under the rope
        i. First one prusik hitch
        ii. Second one for backup figure-8 knot
2. 3rd climber attaches capture prusik

   a. On rope to fallen climber, tail attached to 1st carabiner. Slide the prusik toward the subject, as far as possible.
3. 2nd climber gets up slowly (transfers load to prusik hitch and anchor)
   a. 3rd climber watches prusik to ensure that it holds
   b. 2nd climber attaches to anchor with personal anchor & unties from rope
   c. As soon as the rope goes slack, and the prusik holds:
      i. Make figure eight on a bight with minimal slack, attach to 2nd locking carabiner. This is in case the prusik slips.
4. 3rd climber checks on fallen climber:
   a. Gets ice axe, pully and prusik loop from climber #2.
   b. Prusiks down rope to lip while probing with ice axe for crevasses. (Climber #3 still has prusik attached to the rope.)
   c. Communicates with fallen climber
   d. Ice axe/pack placed under rope to prevent further entrenchment. The 2nd ice axe is used with leash to prevent the 1st ice axe (that pads the lip) from falling into the crevasse.
5. Complete C-Drop Loop
   a. Attach pulley bite in the rope. Pulley should be placed down stream (away from anchor, towards fallen climber) of the prussik hitch that 3rd climber is attached to
   b. Attach a locking carabiner to the pulley
   c. Lower the locking carabiner and pulley down to the fallen climber
   d. Fallen climber attaches carabiner to their belay loop and locks the carabiner
   e. The 3rd climber returns to anchor, prusiking on line fixed to anchor
6. Hauling
   a. The 3rd climber first attaches to anchor with PA, then removes the self-belay prusik
   b. The 3rd climber attaches a prussik hitch to the haul line. This prussik hitch is connected to the anchor using a double runner
   c. Remove figure-8 backup.
   d. Pull until climber is up or additional mechanical advantage is required

C Drop Loop 2:1 Anchor



C Drop Loop 2:1 system

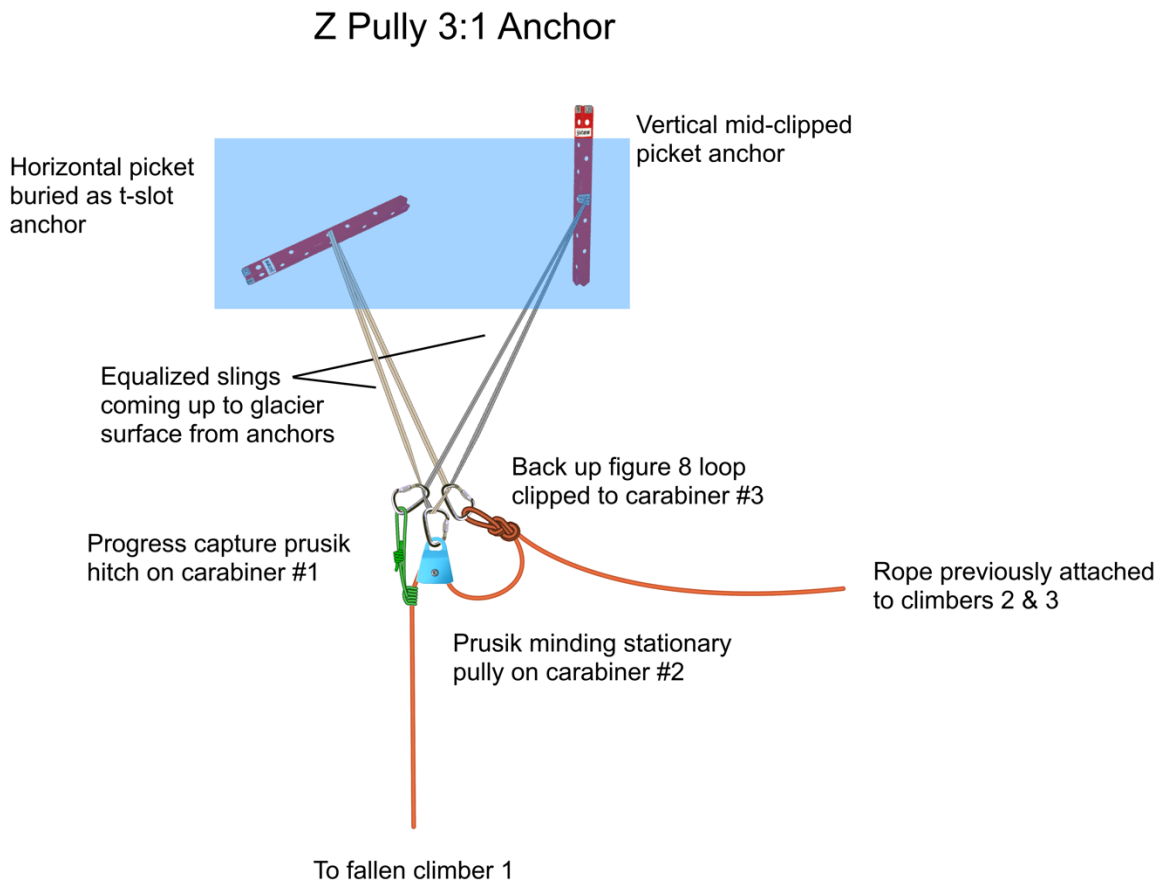


Z-Pulley 3:1 System Setup Step-by-Step

1. 3rd climber sets up a secure anchor system
    a. Gets equipment off of 2nd climber as needed. 3rd climber will need 3 locking carabiners, 2 pickets, 2 prusiks
    b. Prusiks down the rope and probes to anchor location
    c. Located between 2nd climber and crevasse lip, ideally 6' past 2nd climber
    d. 1 picket anchor built as a vertical midclip, 1 buried as T-Slot anchors (dig with adze)
    e. Double runners from picket to top of snow if the picket does not have cables
    f. Runners/cables equalized along direction of rope pull. Power point is under the rope. This is because the weighted rope may lift off the snow surface and because if the anchor is built above the roped, the system will loop around the anchor and not work. Once the anchor is built, the climber should PA into the power point.
    g. 3 locking carabiners through anchor power point (the 2 runners), under the rope
        i. First one for progress capture prusik hitch
        ii. Second one for stationary pulley
        iii. Third one for backup figure-8 knot
2. 3rd climber attaches progress capture prusik hitch
    a. On rope to fallen climber, tail attached to 1st carabiner. Slide the prusik toward the subject, as far as possible.
    b. At this point, climber 3 can also add the pulley. Doesn't necessarily have to wait until middle climber gets up an unties. Only the backup knot requires slack.
3. 2nd climber gets up slowly (transfers load to prusik hitch and anchor)
    a. 3rd climber watches prusik to ensure that it holds
    b. 2nd climber attaches to anchor with personal anchor & unties from rope
    c. As soon as the rope goes slack, and the prusik holds:
        i. Add prusik-minding pulley above prusik, attach to 2nd carabiner
        ii. Make figure eight on a bight with minimal slack, attach to 3rd locking carabiner. This is in case the prusik slips.
4. 3rd climber checks on fallen climber:
    a. Gets ice axe, pully and hero loop from climber #2.
    b. Prusiks down rope to lip while probing with ice axe for crevasses. (Climber #3 still has prusik attached to the rope.)
    c. Communicates with fallen climber
    d. Ice axe/pack placed under rope to prevent further embedding. The 2nd ice axe is used with leash to prevent the 1st ice axe (that pads the lip) from falling into the crevasse.
5. Complete z-pulley
    a. Attach prusik to the rope going into the crevasse as close to the crevasse as is practical.
    b. Insert a bight of the rope through the pulley. Make sure that your prusik (the one that is being using for self belay) is between the pulley and the anchor (if you add the pulley between your prusik and the anchor, you will not be able to prusik safely back to the anchor because there too much slack will develop between you and the anchor).
    c. The 3rd climber returns to anchor, prusiking on line fixed to anchor
6. Hauling
    a. The 3rd climber first attaches to anchor with PA, then removes the self-belay prusik and the figure-8 backup.
    b. Pull until climber is up, or until system requires a reset
7. Reset
    a. Climber #3 must slide the progress capture prusik down as far as possible, then slowly let the prusik take the weight of climber #1
    b. Climber #3 needs to go back to reset the floating prusik/pulley closer to the crevasse. To do this more efficiently, climber #3 can self-belay with a prusik on a section of rope that is tied into the anchor, and not being used in the Z-pulley system.

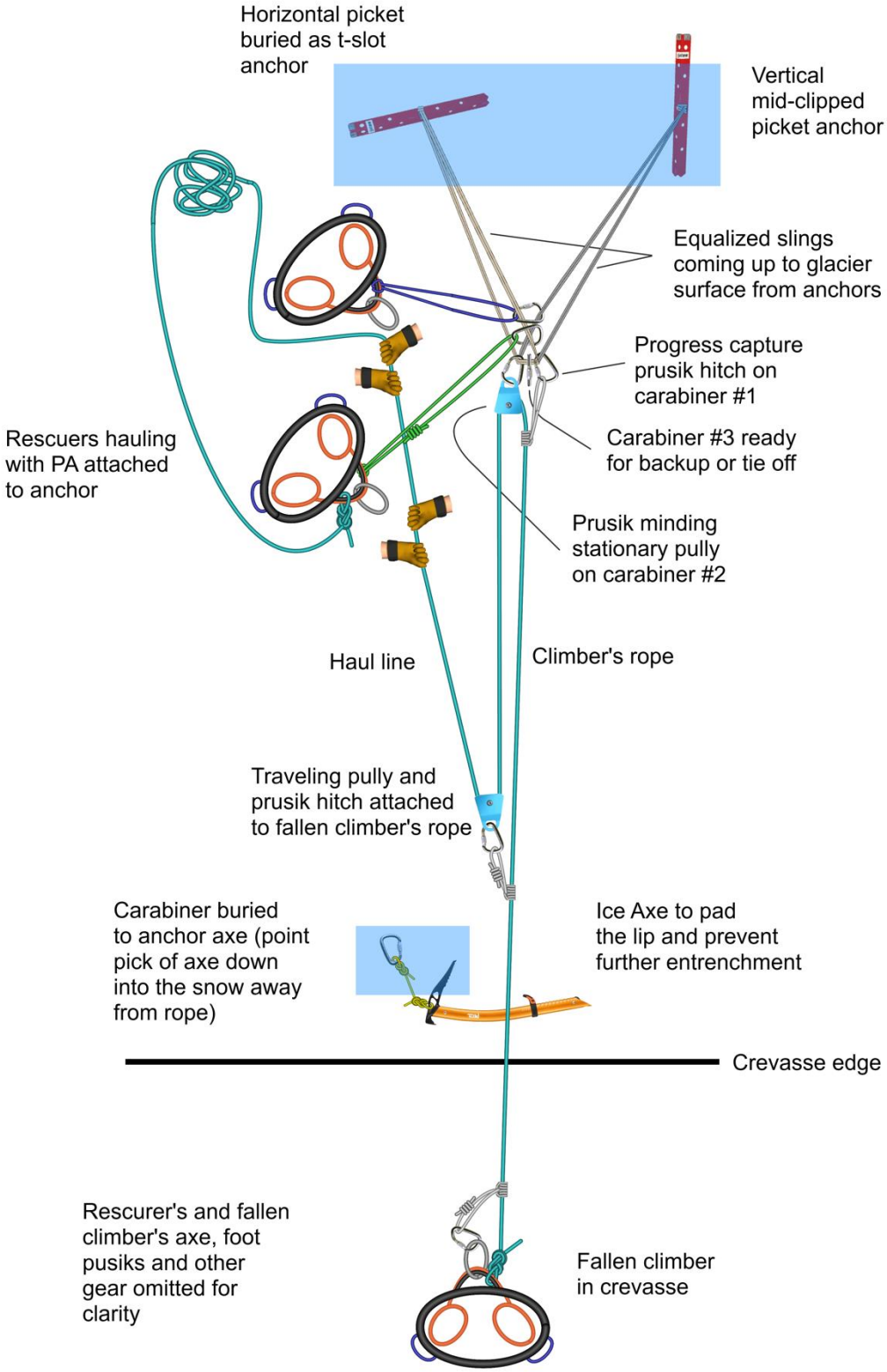
c. Climber #3 takes the climbing rope, beginning at the harness (climber #3 is still tied in to the end of the rope), and estimates the length needed to reset the system, then ties a figure-8 on a bight and clips into a locking carabiner at the anchor power point.
d. Climber #3 ties self-belay prusik next to the figure-8 on the strand leading to the harness, and then
e. Prusiks down the rope fixed to the anchor to reset floating prusik
f. The reset procedure can then be repeated with no need to tie or untie any knots.

8. Summary:
   a. **PPB–PPB**: this acronym will assist you in setting up the Z-pulley:
   b. **P** – attach prusik to anchor in carabiner # 1 (progress capture)
   c. **P** – attach pulley to rope clip to carabiner # 2
   d. **B** – attach backup to anchor in carabiner # 3
   e. **P** – attach prusik to rope at crevasse (floating prusik)
   f. **P** – attach pulley to prusik at crevasse (floating pulley)
   g. **B** – remove backup to anchor from carabiner # 3



The following illustration shows a proper anchor system with the equalized slings and 3 locking carabiners attached. The belay device and stationary pulley can be added after the fallen climber has been checked on, the lip padded, and the floating pulley and prusik added to the system.

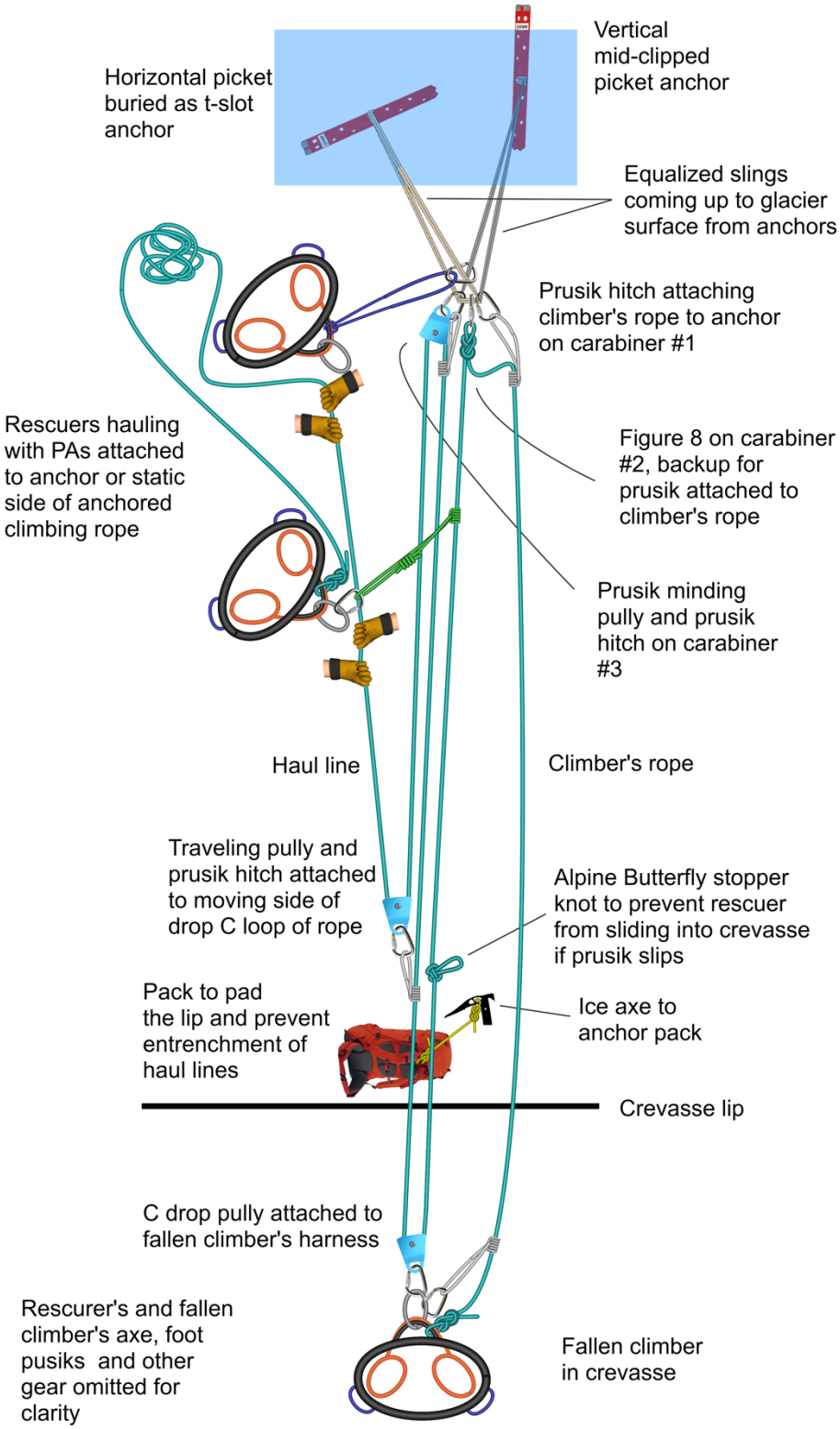
Z Pully 3:1 system



Adding 3:1 Z Pulley to 2:1 C-Drop Loop (optional)

1. Add Z Pulley System to increase mechanical advantage
    a. Grab a bight of the haul rope
    b. Attach a pulley and progress capture to the haul rope
    c. Connect the pulley and progress capture to the anchor
    d. 3rd climber attaches to rope using self-belay prusik. Build Z pulley system
2. Reset
    a. Climber #3 must slide the progress capture prusik down as far as possible, then slowly let the prusik take the weight of climber #1
    b. On the original fallen climber line, pull out all slack through the progress capture prussik hitch
    c. Climber #3 needs to go back to reset the floating prusik/pulley closer to the crevasse. To do this more efficiently, climber #3 can self-belay with a prusik on a section of rope that is tied into the anchor, and not being used in the Z-pulley system.
    d. Climber #3 takes the climbing rope, beginning at the harness (climber #3 is still tied in to the end of the rope), and estimates the length needed to reset the system, then ties a figure-8 on a bight and clips into a locking carabiner at the anchor power point.
    e. Climber #3 ties self-belay prusik next to the figure-8 on the strand leading to the harness, and then
    f. Prusiks down the rope fixed to the anchor to reset floating prusik
    g. The reset procedure can then be repeated with no need to tie or untie any knots

Z on C Drop Loop 6:1 system



Other Crevasse Rescue Scenarios
(from Glacier Travel and Crevasse Rescue by Andy Selters)

4-person Rope Teams:

1. When the end of a 4-person rope team goes into a crevasse, the process is largely the same as a 3-person rope team. In this case however, there will be 2 climbers that will need to prusik to the "middle" climber who is next to the subject on the rope holding the fall.
2. When a climber on the inside of a 4-person rope team falls into a crevasse, the 2 climbers who are together on one side of the crevasse are the ones in the best position to carry out the rescue. The process with these 2 rescuers would be the same as the 3-person crevasse rescue.

Middle climber falls on a 3-person Rope Team:

1. When a middle person on a 3-man rope team falls into a crevasse, the process is a little more complicated.
2. The climbers on each end of the rope need to determine which one is holding the weight of the middle climber by communicating back and forth until one climber is successfully arresting the fall.
3. The rescuer who is not holding the weight of the fall would then prusik down the rope and get closer to the subject.
4. The rescuer would then set a standard Z-pulley anchor. If the rescuer does not have a second picket, they would need to improvise with their ice-ax, stuff sack filled with snow, probe, etc.
5. Once the anchor is set, the climber holding the subject would slowly let the subject swing and transfer the weight onto the rope held by the anchor.
6. The first rescuer can now proceed with the rest of the rescue (i.e.: padding the lip of the crevasse, setting up a haul system, etc.)
7.

Summary and Expectations

The skills addressed in this lecture and the basic snow travel skills previously introduced at Snow 1, such as self-arrest, team arrest and steep snow travel will be required at Snow 2 and on Basic Glacier Climbs. Students should review this material and be prepared to demonstrate proficiency at Snow 2. Further, safely and correctly constructing a crevasse rescue system needs hands-on practice to master, and "dry run" re-enactments are helpful to learn the sequence of steps. Note that the final exam will include questions concerning crevasse rescue system(s), and students are required to demonstrate their knowledge of and skills in setting a system of their choosing. This is a lifesaving technique that all team members must be capable of performing.

Session 13: Crevasse Rescue Practice, Snow 2 Field Trip Primer

Class Schedule	
5:50	Sign In at TBD
6:00	Introduction and announcements
6:05	Crevasse Rescue Practice
7:10	Break
7:20	Crevasse Rescue Practice
8:10	Field Trip Information
8:15	Class dismissed
8:30	All students and instructors out of TBD

Required Reading: See "Reading Assignments" – page 12

Required Practice: C-Drop Loop 2:1 or Z Pulley 3:1 Setup

Equipment: Practice rope, harness, personal safety anchor, (3) locking carabiners, belay size locking carabiner, (2) non-locking carabiners, (2) double runners, prusik, hero loop prusik, Texas Prusiks, chest harness, prusik-minding pulley.

Purpose and Objectives:
Students will have class time for practicing the crevasse rescue system. Discuss plans and expectations for Field Trip Snow 2.

Field Trip - Snow 2

Field Trip Schedule	
Arrival Time and Location	7:00 AM Schreiber's Meadow Trailhead, Mt. Baker
Briefing Time	7:30 AM
Driving Time	2-2.5 hours from Bellevue / Seattle
Equipment	See Equipment Matrix in the front of this Handbook
Reading Assignment	Review FotH Chapters 16 and 17

Field Trip Objectives:

- Learn and practice the fundamentals of glacier travel
- Learn and practice crevasse rescue techniques
- Practice traveling with crampons
- Review and practice ice axe arrest techniques
- Review snow anchors and belaying techniques
- Further develop avalanche awareness

Organization:

This trip will be similar to Snow 1. You will be divided into groups of about 3 or 6 people. Each group will get at least 4 ropes to divide up amongst your group. Again, we remind you to not use these for personal use, and don't forget to pack them for the field trip!

We will have an organizational meeting at the trailhead before starting out on Saturday morning. When you are assigned your instructors, stay with them, and travel as a group. More than any other field trip, there will be differences in the pace of travel of different group members. Faster people need to be patient. The hike in to the area where we set up base camp is about 4 miles, with about 1400 feet of elevation gain. It is possible that there could still be some snow blocking the road to the trailhead, so the hike in could be a little bit longer.

Saturday

Your entire group should be ready to go at 6:30 AM. We want to be on the go early before the heat of the day makes the snow soft. Please help us get started ON TIME! The camp area is in the large, nearly flat basin just east of the Railroad Grade, at about 4700 feet. When you arrive, set up your tents, have some lunch, and prepare to head up onto the glacier.

This day is devoted to crevasse rescue practice. Before leaving the camp area, everyone will be roped up in teams of 3 or 4. Make sure to take along all necessary gear for the day, as you won't return to camp for several hours. Crampons may or may not be needed for the hike to the crevasses, but they will be used in the crevasse, so take them along.

Sometime in the late afternoon, groups will wrap-up the day, head back to camp and prepare for the evening. Have a good hot dinner and enjoy the evening. At some point we will meet as a class, review the day, and discuss plans for Sunday.

Sunday

This day will be spent with your group doing more of the same exercises and practices that you did on Snow 1. We expect that by this time you will show good proficiency with these skills. Hopefully, by late morning your group will have a chance to practice the crevasse rescue system of your choosing so that everyone understands the principles and placement of people and anchors

You will work on these skills until about midday. Once you wrap up, you will travel back down to base camp and pack things up for the trip out. The entire class group will depart camp together. On the way out, keep your individual group together, and avoid just blending into the crowd.

Note: We may decide to alter the agenda and have people do crevasse rescue on Sunday. This would be done depending on the weather and crevasse situation!

Crevasse Rescue Practice

You will travel in rope teams from the camp area up onto the Easton Glacier. It is difficult to tell where the crevassed portion of the glacier starts, so be alert at all times. Upon arrival at a suitable area for practice, the following sequence of events will take place:

1. Instructors and students should carefully and thoroughly probe the area for hidden crevasses.
2. The "safe" area will be roped off. Set the safety anchors about 25 feet back from the lip of the crevasse. Attach a safety line between the anchors with figure-8 knots.
3. After the safety line is set, everyone can clip to it, and then un-rope from the climbing rope. Keep your group's gear together, and away from the practice area. Clip your pack to the safety line. Stay connected to a safety rope at all times!
4. Near the center of the safe area, two T-Slot anchors will be set-up for belaying. A single rope, anchored at the mid-point by a third T-Slot anchor will be used for both belays.
5. Two remaining ropes will be set up as simulated climbing/falling ropes to the subject. The topside loose ends will be clipped to the safety rope.

Everyone needs to perform each of the following rescues:

- Self-rescue by prusiking: You will be lowered into the crevasse on the belay rope. Rather than putting your feet in the foot prusiks ahead of time, wait until you are lowered into the crevasse. After being lowered 20 – 30 feet, you will put your feet into the loops and prusik out.
- C- Drop method: subject is lowered into the crevasse on the belay rope. A rescue rope is lowered on a bight with a pulley and carabiner. The subject clips the carabiner into the harness, signals topside, and is hauled up by the rescuers above.
- Z-pulley system: subject is lowered into crevasse on the belay rope. The subject is also attached to the rescue rope. The other topside climbers go into self-arrest and set-up the system with the other rope team as explained in the lecture.

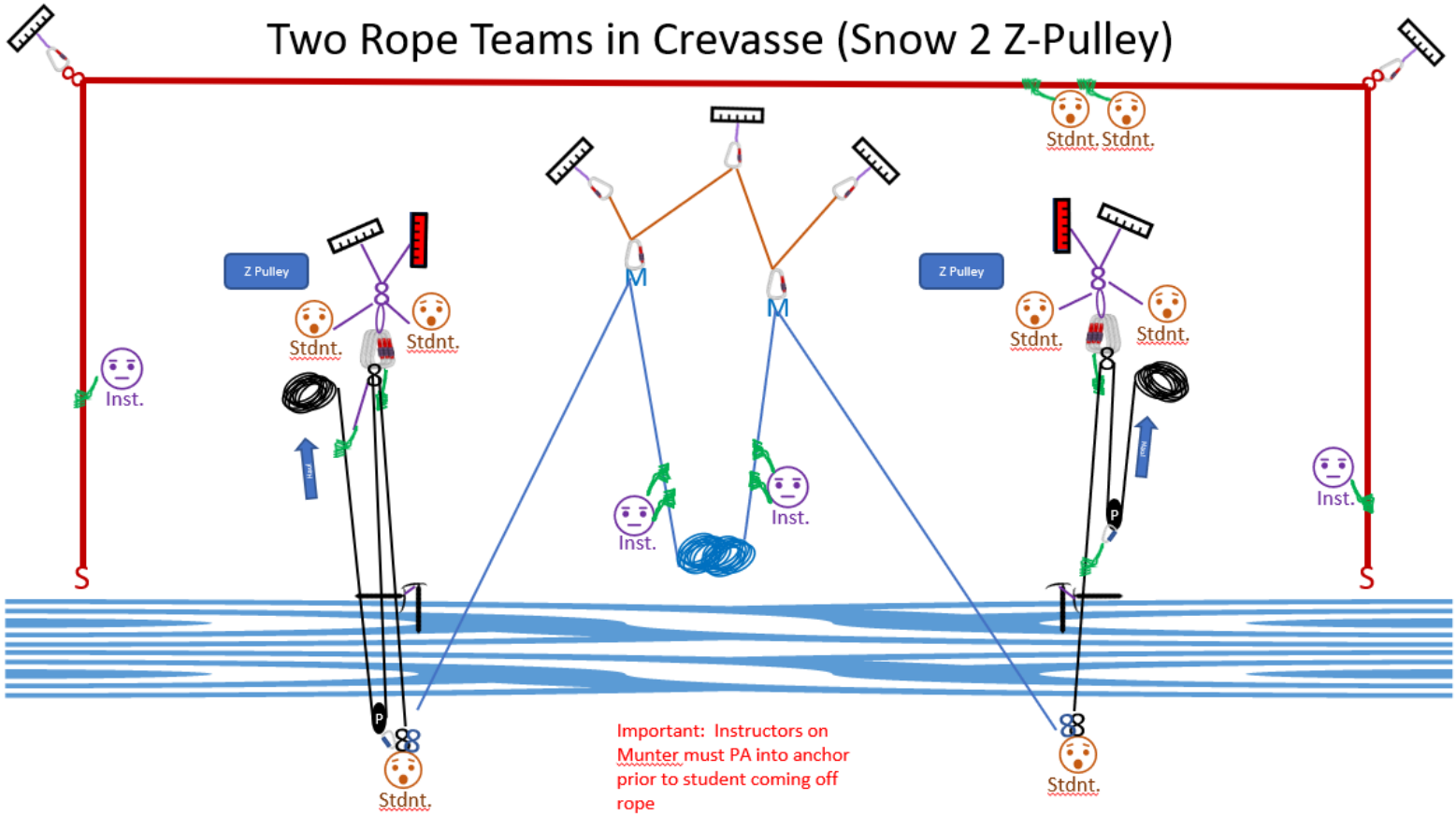
Safety Considerations:

- Glaciers are unpredictable places, and because of that, this is potentially the most dangerous field trip. No one, including instructors, should be un-roped at any time while on the glacier. Also, when traveling along the glacier, keep the slack out of the rope. Never carry coils of rope in your hand.
- Everyone who is lowered into a crevasse must be on a second belay line.
- Snow anchors can weaken dramatically, particularly in warm weather. Check your anchors frequently throughout the day for melt out.
- Remember, it may be warm on the surface, but in the crevasse it will be cold and VERY wet. Dress appropriately with rain gear, warm gloves, and hat before being lowered.
- Make sure your seat harness, chest harness, and prusiks are properly tied and adjusted before being lowered into the crevasse. Better to discover a problem while standing on the surface than twenty-five feet below the lip.
- Crampons should be worn by anyone being lowered into a crevasse. Again, make sure they are properly attached and adjusted.
- Helmets must be worn during all the activities on this field trip.
- Apply sunscreen early and often, or you will go home looking like a lobster!
- Regarding bathroom breaks while on the glacier: it would be very unwise to either "hold it in" for several hours, or intentionally not drink in hopes of avoiding the problem. You may feel very awkward about it, but people must take care of those needs, and their partners should cooperate. Show respect for others' privacy when they need bathroom breaks out in the middle of the glacier. DO NOT UNROPE!

The experience of being lowered into a crevasse on a real glacier is quite thrilling and beautiful, but we know it will be intimidating for many of you. If you have troubles, remember: you have gone through a lot of challenges in this course, and you will get through this one, too.

The crevasse rescue practice set-up can be a very confusing scene with all the anchors, belays, ropes, runners, and carabiners everywhere. Don't worry too much if you are a bit baffled by it all. Your instructors are responsible for managing the overall set-up. If you can remember only one thing, let it be this: Always be clipped in to an anchor or safety rope.

Two Rope Teams in Crevasse (Snow 2 Z-Pulley)



(4) Instructors
(6-8) Students

(1) 60M red safety rope
(1) 60M blue belay Lines

(2) 60M black rescue ropes
(9) Pickets

S Stopper Knot (1/2 Dbl Fisherman)
8888 Figure 8
Locking Biner

Non-Locking Carabiner
Ice Axe
Runner/PA

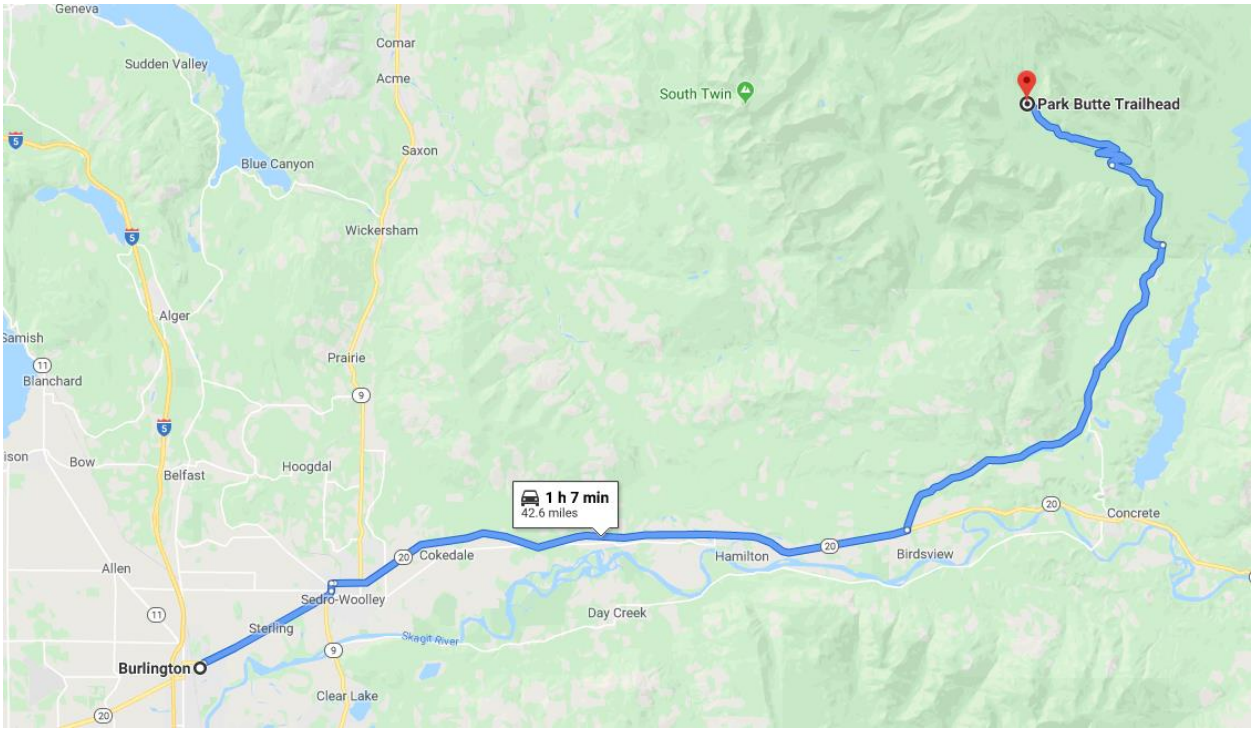
Pulley
Prussic

Cordelette
T-Slot Picket

Vertical Midclip

Mt. Baker – Easton Glacier Driving Directions

- Go north on I-5
- Take Exit 230 (Burlington) and head eastbound on Hwy 20
- Go east for 22.7 miles on Hwy 20, then turn Left on Baker Lake Rd (about five miles east of Hamilton).
- Go 12.3 miles to just past Rocky Creek Bridge, then turn left on Forest Service Road 12 (might be a sign for Mt. Baker Recreation Area)
- Go 3.5 miles and turn right on Road 13 (Sulphur Creek Rd)
- Go 6.3 miles to Schreiber's Meadow Trailhead or until stopped by snow.



Final Exam

Class Schedule	
5:50	Sign In at TBD
6:00	Introduction and announcements
8:15	Class dismissed
8:30	All students and instructors out of TBD

Required Reading: Review all previous reading assignments

Equipment: Practice rope, all climbing gear, pencil, headlamp and appropriate clothing for outdoor practical

Purpose and Objectives:
Tonight's Final will consist of two portions: a written exam and a practical skills test.

This exam covers all of the material we have covered in the course. You can expect to be tested on all of the knots that were taught in the course, anchors, the set-up for belays, rappelling, and crevasse rescue systems. Know these things well, since they are crucial to your mountaineering success. We expect that you have mastered them by this point in the course; however, your are only required to show your proficiency in setting up one of the two crevasse rescue systems.

If you have made the commitment throughout this course, been attentive in class, read the assignments, and practiced the necessary skills on your own, then chances are very good that you will do quite well on the final.

Potluck Dinner & Exam Review

Class Schedule	
7:00	Exam Review Announcements Basic Climbs Primer Questions and Answers
7:30	Eat and Celebrate

Basic Climbs Primer

Definition

Basic Climbs give you the opportunity to develop your climbing skills by applying the methods and techniques you learned in the lectures and field trips on actual climbs. The climbs are scheduled for you to gain experience, have fun, and learn more about your abilities and the mountains. Changing weather and mountain conditions may make it difficult to complete some of your scheduled climbs. So, start climbing early in the season to improve your chances of completing your required climbs.

There are three types of Basic Climbs:

- Basic Rock Climb: Must be at least two roped pitches (minimum Class 4), where a "pitch" is understood to mean the maximum usable distance between belay points (usually 120-150ft).
- Basic Glacier Climb: A minimum of 2 hours of roped travel on a glacier.
- Basic Alpine Climb: Roped climbs that may have some rock and/or glacier climbing, but not enough of either to count as a rock or glacier climb.

In order for a climb to count for graduation, all of the following must occur:

- The trip is led by an approved Mountaineers' Climb Leader.
- The trip is approved and scheduled by the Climbs Coordinator.
- The route done is on the Foothills Mountaineers' list of acceptable Basic Climbs, or is pre-approved by the Climbs Coordinator.
- The climb leader reports that you reached the summit AND that you performed acceptably.
- The party size is at least three, and at least two rope teams on a glacier climb.
- A rope was used for the "technical" portions, i.e. Class 4 and above on rock and/or glacier travel.

A partial list of approved Basic Climb list can be found toward the end of this handbook.

Eligibility

All Foothills Mountaineers Basic Climbs are open only to Mountaineer members who are current Basic Course students or graduates. STUDENTS ARE ELIGIBLE PROVIDED THEY HAVE SATISFACTORILY COMPLETED ALL LECTURES AND FIELD TRIPS, AND HAVE MET THE CRITERIA FOR PASSING THE COURSE (including passing the exams). Foothills students can do climbs with any Mountaineers branch, but we encourage our students to stay with the group here. You'll be familiar with both the students and instructors and they will be familiar with you.

Expectations

When you become eligible to go on Basic Climbs, you will have successfully finished the lecture and field trips portion of the course. It is assumed, then, that you have the basic knowledge and skills that were taught and practiced. Beyond that:

- Be physically and mentally ready to do the climb. This refers to conditioning, injuries, illnesses, and lack of sleep. Don't go if you can't handle it.
- Bring the right gear.
- Be on time. Don't ever be a no-show.
- Carpool.
- Study maps and guide books, and be informed so you can assist in route finding if necessary. Your climb leader is not a guide.
- If you are unsure of anything, ask about it. You are not being tested on these climbs. They are designed for you to learn and refine your new skills.
- Help keep the party together. Be a team player, not someone running his/her own agenda.

- Use common courtesy. Be respectful of the leader, of fellow party members, and of others in the backcountry. Help out with camp chores, carrying group gear, or being encouraging when others need it. Keep a good attitude and work together toward the group's goal.
- Most importantly, KEEP SAFETY THE TOP PRIORITY.

Signing Up for Basic Climbs

Climb leaders from all branches post Basic Climbs on the main Mountaineers web site. As a basic student who has fulfilled all course work, you are eligible to sign up for these types of climbs. Basic Climbs include Glacier, Rock and Alpine climbs. Students are not eligible for Winter Climbs or Club Climbs.

To sign-up for a climb online, log-in with your member id and password at www.mountaineers.org. After log-in, click on Explore and then Find Activities:

- Search for a Specific Climb (Optional). If you are aware of a specific climb that has been posted, you can enter the leader's name, keywords like the summit name, etc.
- Specify the Type of Activity. In the second section, specify the type of activity you are searching for. In this case, the type of activity is Climbing. Check the box to limit the results to climbs.
- Select A Date Range. You can also specify a range of dates in which you are looking for a climb. You can only list yourself for one climb during these dates. If you try to sign up for a climb in a date range where you are already listed, you will have to cancel yourself from the other climb first. Note that this might not make you popular with the first climb leader!
- You can also select the branch, and whether you are searching for a Basic or Intermediate climb.
- After a successful search, a list of Activities will be returned to you. Click on the activity you wish to sign up for and click the Register button to register for the climb.

If you get a message that you must Sign Up with Leader, you will have to email or call the leader to get listed for the climb. Otherwise, you can click the Register button to add yourself to the climb. If Leader Permission is required, you will be asked to confirm that you received permission from the leader to sign-up for the climb. It is your responsibility to get permission when it is required.

Once you are signed up, the climb leader will contact you with further information.

Etiquette for signing up for basic climbs dictates that you should not sign up for multiple climbs on the same weekend (hedging your bets). You should commit yourself to any particular climb that you sign up for and do everything you can to be on the climb. Climb leaders give up their time to climb with you and do a lot of work to organize a climb. Be respectful of their time and dedication to you as a student. Do not bail on a climb leaving the climb leader to find a new climber. This is disrespectful to the climb leader and your fellow students.

What to expect on a Rock Climb

Timeframe: Most Basic Rock Climbs are one-day trips. Quite often it will be necessary to leave town at 5:00 am or earlier, and it may even be more sensible to drive over the night before and camp near the trailhead. The leader will coordinate these plans with the group ahead of time.

Trailhead: At the trailhead the leader will check things out and give last minute instructions. More than likely you will need to add a rope to your pack so allow for it. A 40-pound daypack is too much and will wear you out before you even reach the technical portion of the climb.

Approach hike: Don't be fooled by the 15-minute approaches in Leavenworth. Most Basic Rock Climbs will have an approach hike between two and six hours. Some of it might be on trails, and some will be off-trail scrambling over rocks and snow. Always figure on taking and using your ice axe, and plan to wear your heavy-duty climbing boots. The approach hike ends when you begin the technical part of the climb.

Technical climbing: Ropes come out, anchors are set up, belays are rigged, and the fun begins. All this can be a bit confusing on the first Basic Rock Climb but always remember this: when you are in an exposed place, ALWAYS BE ATTACHED TO AN ANCHOR OR ON A BELAY. Watch other people, too. Are their harnesses secured? Are they tied in properly? Are the anchors bomb-proof? Is the belay (or rappel) set up properly? Learn to BE EXTREMELY DETAIL ORIENTED.

The usual procedure on a rock climb is to use rope teams of two. One student is paired up with an experienced climber. The leader and/or experienced climber leads up first, placing protection as necessary. The student follows and cleans the pitch. Other variations are possible, and the leader will explain what procedure your party will use.

One very important aspect of the rock climb is time management. Technical climbing, especially with beginners, is very time consuming. If your party is not careful, you could be stuck on the rock at nightfall. It is critical that you not waste time. Always be thinking "what needs to be done now?" and if you don't know then ask. Learn to become fast at tying knots, coiling ropes, and taking down anchors.

Excellent rope management skills are also very important:

- Never step on the rope.
- Avoid getting the rope into a tangle.
- Make sure the rope runs smoothly from belayer to climber, without getting pinched in cracks or looped around a horn or tree.
- Learn to throw down a rappel rope well.

Loose rock can kill. Always wear your helmet, and be obsessive about keeping your boots, pack, and the rope from knocking rocks loose.

Unlike the casual roadside climbing of Leavenworth, you will probably climb with your pack. Pack wisely.

Descent: Remember that the summit is only half the climb. You may be tired, cold, wet, hungry, and thirsty, but you must not get careless. Use special caution on rappels, for they are potentially the most dangerous part of the whole climb. Remember to ALWAYS BE ATTACHED TO AN ANCHOR when setting up your rappel and keep helmets on until everyone is down. On the hike out, stick together as a group. When you get to the cars, make sure all the drivers have keys to their cars and that all the cars start.

What to expect on a Glacier Climb

Timeframe: None of the Basic Glacier Climbs are quick and easy. The mountains are either very big (Rainier, Baker, Adams…) or fairly remote (Olympus, Dome, Clark…). Almost all of them are going to be two or three day trips. Glacier climbs are best before late summer because the glaciers become heavily crevassed, which makes route finding very troublesome, and the snow melt exposes bare difficult ice. For these reasons, try to complete your glacier climbs early. Not many glacier climbs are scheduled after Aug. 15th.

Preparation: Logistically, glacier climbs are considerably more involved than rock climbs. There is a lot that the leader has to coordinate with the group. Sometimes a pre-climb meeting may be held to make the planning process easier for everybody. In any case, it is important that you know precisely what the plans are before the day of the trip. What gear are you to bring? When and where is the group going to meet? What is the rough agenda for the trip? What special expectations does the leader have? If you are in doubt about anything, get it clarified before you set foot on the mountain.

Trailhead: Try to get your packing done at home before you arrive at the trailhead because there is the packing of the group materials that are divvied up at the trailhead. Who has tents? Do we have enough stoves? Who's carrying the ropes, pickets, snow shovels, and flukes? Your pack will grow! Try to not exceed one-third your body weight. You won't be as fast as a day hiker but if you are in proper condition, you should be able to lug your load to base camp without serious delays or injury.

Approach Hike: The approach hike will be anywhere from a few hours to a full day or more. It will include trails, snowfields, and maybe roped glacier travel, before reaching base camp. Pace yourself and drink lots of water. If you are fatiguing while other persons are feeling fine, ask them to take some weight from your pack. If your feet are blistering, take care of them immediately. Remember that this is fun!

Base Camp: When you arrive there's lots to do. Tents must be set up, extra clothing put on, water must be gathered, meals cooked, and gear organized. At some point the leader will gather the group to discuss plans for the summit day. Make sure you are clear about all the plans, and make sure the leader knows how you are feeling. Before turning in for the night, you should have accomplished the following:

- Know the wake-up time and departure time.
- Fill your water bottles.
- Have your headlamp ready.
- Make sure that your crampons fit your boots and that you know how to attach them.
- Know whose rope team you're on and where to tie in.
- Have your pack ready to go.
- Have your breakfast handy for quick preparation.

If you've done these things, you are in good shape. However, if you suspect you will be slower than most, allow for extra time by getting up earlier.

Summit Day: It usually begins long before dawn. Don't waste time when getting ready. You need to be packed, tied into the rope, and ready to roll at the designated departure time. It's going to be dark, windy, and cold, and your fellow climbers don't want to wait any longer than they have to. Having an early start is vital because the climbing is easier and safer in the colder morning hours.

Usually, but not always, you will start out on a glacier. Maintain good rope management at all times, and be ready to arrest if a fall occurs. When you reach the summit, don't let your guard down. The descent is actually quite a bit more hazardous than the climb. Stay focused in spite of fatigue.

Upon returning to base camp, tents and other gear can be packed up, as the group prepares for the hike out. Again, use caution on the latter stages of the trip, when you are very tired. Many mountaineering accidents happen on the descent. Often parties get widely separated on the way out; do your part to make sure this doesn't happen. When you get to the cars, make sure the drivers have their keys and their cars start.

Foothills Basic Climbs - Partial List

Here is partial list of climbs that are approved as Basic Climbs by the Foothills Mountaineers Climbing Committee. Although this is a fairly comprehensive list of climbs, it is not complete. Other climbs may be obtained by going to the website.

Guide Book Reference column:

B1, B2, B3: Cascade Alpine Guide, volumes 1, 2, and 3 by Fred Beckey.
CV: Summit Guide to the Cascade Volcanoes, by Jeff Smoot.
OLY: Climber's Guide to the Olympic Mountains, by Olympic Mountain Rescue
Example: B2:117 means page 117 in the second volume of the Fred Beckey's Cascade Alpine Guide.

Ranger District column: This column tells the location of the office that has jurisdiction over the climb area. Direct inquiries about road and trail conditions, and emergency numbers to this office. Phone numbers can be found in the front of the handbook.

Glacier Climbs

Peak	Route (class)	Guide Book	Ranger Dist.
Adams	Mazama Glacier	CV:94 B1:57	Trout Lake
Baker	Boulder Glacier Coleman/Deming Glacier Easton Glacier	B3:36, CV:45 B3:31, CV:43 B3:36, CV:44	Sedro Woolley Glacier
Clark	Walrus Glacier	B2:149	Wenatchee
Daniel	Lynch Glacier	B1:183	Cle Elum
Dome	Dome Glacier	B2:229	Darrington
Eldorado	Inspiration Glacier		Marblemount
Garibaldi	East Face (3)	CV:36	Squamish
Glacier	Frostbite Ridge Kennedy Glacier Sitkum Glacier Vista Glacier	B2:93, CV:61 B2:93, CV:61 B2:90, CV:55 B2:93, CV:95	Darrington Darrington Darrington Darrington
Hood	Cooper Spur South Side	CV:11 CV:108	Hood River Zigzag
Icy	North Rt.-"Ruth/Icy Tv. (4-5) West Rt/Nooksack Cq. (3)	B3:60 B3:60	Glacier Glacier
Jefferson	Whitewater Glacier		Oregon
Little Tahoma	East Sldr./Whitman Gl. (3)	B1:120, CV:81	White River
Logan	Banded Glacier (3)	B2:313	Marblemount
Olympus	Blue Glacier –Rt. 1 (3)	OLY:163	Hoh
Rainier	Disappointment Cl. (DC) Emmons/Winthrop Glacier	B1:93, CV:66 B1:118, CV:68	Paradise White River
Sahale	Quien Sabe Gl./West Rt.	B2:305	Marblemount
Shuksan	White Salmon Glacier (3) Fisher Chimneys (3) Sulphide Glacier (3)	B3:65 B3:64 B3:73	Glacier Glacier Sedro Wool
Snowfield	Neve Glacier (3)	B2:278	Marblemount
Tom	White Glacier (Rte 1)	OLY 169	Hoh
Wedge	West Ridge	BC:65	Squamish

Rock Climbs

Peak	Route (class)	Guide Book	Ranger Dist.
Cathedral Rk.	Southwest Face (II, 3-4)	B1:184	Cle Elum
Chair	Northeast Buttress (II, 4)	B1:152	Snoqualmie
Cruiser	SW Corner, Rt. 1 (I, 5.0)	OLY:74	Staricase
Cutthroat	West Ridge (II, 4)	B3:353	Marblemount
The Fin	Northwest Ridge (I, 4)	B3:353	Marblemount
Foggy	North Ridge (I, 5.0)	B2:76	Verlot
Guye	W. Face, N. Section (I, 4)	B1:156	Snoqualmie
High Priest	North Face (I-II, 5.5)	B1:235	Leavenworth
Ingalls	Southwest Face (I, 4) South Ridge (I, 5.4) SW Face, E. Pk (I, 4-5)	B1:286 B1:287 B1:288	Cle Elum Cle Elum Cle Elum
Kangaroo	North Face (I, 5.6)	B3:308	Marblemount
Lundin	West Ridge (I, 4)	B1:159	Snoqualmie
Mixup	East Face (II, 4)	B2:249	Marblemount
Sharkfin Twr.	E Face/SE Ridge (II, 5.3)	B2:304	Marblemount
Sherpa	South Route (II, 3-4)	B1:269	Cle Elum
Slippery Slab	Northeast Face (II, 4)	B1:293	Skykomish
SEWS	South Arete (I, 4-5)	B3:324	Marblemount
Temple	West Side (I, 5.3)	B1:233	Leavenworth
Three Fingers	N. Pk, West Route (II, 4)	B2:112	Verlot
The Tooth	South Face (I-II, 4-5)	B1:148	Snoqualmie
Witches Twr.	South Face (I-II, 4-5)	B1:252	Leavenworth
Yellow Jkt Twr	E Flank (I, 5)	B1:224	Leavenworth

Alpine Climbs

Peak	Route (class)	Guide Book	Ranger Dist.
Anderson	Anderson Glacier, Rt 1 (3)	OLY:91	Dosewallips
Brothers	S. Couloir	OLY:48	Hoodsport
Constance	South Chute, Rt. 1 (II, 3) North Chute, Rt. 1A (II, 3)	OLY:102 OLY:105	Quilcene Quilcene
Corteo	Southwest Ridge (I, 3-4)	B2:321	Marblemount
Curtis Gilbert	Conrad Gl. (N Route)	B1:72	
Dragontail	Colchuck Col/W Rt. (II, 3)	B1:255	Leavenworth
Logan	Fremont Glacier (II, 3) Douglas Glacier (II, 3)	B2:312 B2:313	Marblemount Marblemount
Monte Cristo	North Col Route (II, 3-4)	B2:70	Verlot
N Twin Sister	West Ridge (I-II, 3-4)	B3:44	Sedro Woolley
Redoubt	S. Face (S Route)	B3:113	
Sahale	South Slope (II, 3-4)	B2:305	Marblemount
Sherpa	South Route (II, 3-4)	B1:269	Cle Elum
Silver Star	Silver Star Glacier (II, 3)	B1:269	Marblemount
Sloan	Corkscrew	B2:20	Verlot
Snowking	Northeast Shoulder (II, 2) West Route (II, 2)	B2:267 B2:267	Darrington Darrington
Spickard	S. Ridge (S Slope)	B3:109	
Stuart	Cascadian Couloir	B1:270-286	
Unicorn	South Side	B1:123	Paradise
Warrior	SE Summit	OLY:117	Quilcene
Whitehorse	Northwest Shoulder (II, 3)	B2:116	Darrington

Wilderness First Aid (WFA)

You are allowed to participate fully in the Basic Climbing Course and on the Basic Climbs without Wilderness First Aid (WFA), but you must complete it if you wish to graduate and continue climbing with the Mountaineers. If you feel you have had similar training, which could exempt you from the WFA requirement, discuss your situation with the Basic Climbing Committee. WFA is not included in your Basic Climbing Course fee.

General Information:

Mountaineering is inherently hazardous. Some knowledge of first aid is essential to safe climbing. The First Aid Committee of The Mountaineers, in conjunction with the RMI and the Red Cross, offers a first aid course designed specifically for backcountry travelers, known as WFA. This is a 24-hour first aid course taken separately from the Climbing Course. The course builds on the requirements of the American Red Cross (ARC) Standard First Aid course with an additional 24-hours of wilderness focused first aid training. The volunteer instructors are certified by the ARC.

Prerequisites:

There are no prerequisites for the RMI WFA course.

Course attendance:

Participation is required at all class sessions. The class involves hands-on, interactive learning. Wear casual clothes suitable for working on the ground and outdoors. Arrangements cannot be made to make up class sessions. Please do not register for a class unless you can attend all class sessions.

Signing up:

Check The Mountaineers website frequently as new courses are added often.

Note:

Sign up early! These classes fill up quickly during the winter, and the summer classes tend to get cancelled.

Mountaineers Emergency Contact Procedures and Call Tree

Members of all branches/committees with a trip emergency should:

1. First call 911, and ask to be transferred to the Sheriff of the county they are in (or National Park Service for Rainier, Olympics, & North Cascades) for a Search and Rescue (SAR).
2. Second notify the club by calling the Mountaineers Emergency Line:

206-521-6030

This will bring the services of the Mountaineers organization to bear. The club representative can provide advice on managing through the incident, notify emergency contacts and relevant committee/club leadership, and serve as spokesperson for external organizations such as the media.

They will hear a message that says: "You have reached the Mountaineers Emergency line. If you are involved in a trip emergency, call 911. If you've already done this, please press '1'. You will be connected to the club representative on-call who can provide further assistance. If you have tried that person and they are not available, press '2'", if they are not available press "3".

Please share this information with all climb participants and all emergency contacts.

Cut out the following and carry in your 10 essential package:

Mountaineers Emergency Line

First call **911**, and ask to be transferred to the Sheriff of the county you are in (or National Park Service for Rainier, Olympics, & North Cascades) for a Search and Rescue (SAR).
Then call the club at: 206-521-6030

Graduation Requirements and Extensions

Requirements for Graduation:

In order to graduate, you must have certain requirements accomplished:

REQUIREMENTS COMPLETED	YES	NO
• Attend **all** course lectures	_____	_____
• Attend and satisfactorily complete **all** course field trips	_____	_____
• Pass the evaluations and final exam	_____	_____
• Be a Mountaineer member	_____	_____
• Have a current certification for WFA	_____	_____
• Complete Wilderness Navigation course	_____	_____
• Complete Low Impact Recreation	_____	_____
• Volunteered for a service/stewardship trip	_____	_____
• Reach the summit on three* official Basic Climbs by October 15	_____	_____
• One roped rock climb	_____	_____
• One glacier climb	_____	_____
• One of your choice (or two T3+ scrambles). *Waived for Scramble Graduates	_____	_____
• Petition the climbing committee by October 15th using the online form	_____	_____
• Approval of the climbing committee	_____	_____

We understand that in some circumstances, people are unable to complete all of their basic climbs or the WFA class by the October 15th deadline. Under certain circumstances, extensions may be granted.

Once you've completed the requirements listed here complete the online form to request graduation using this link: https://survey.alchemer.com/s3/6439808/Foothills-Climbing-Graduation-Petition

Graduation Extensions:

Requests for extension are evaluated on a case-by-case basis, and are usually granted only for illness, injury, or family emergencies that keep a student from completing their climbs. Requests must be submitted in writing to the Foothills Branch Basic Climbing Committee. Per the committee's discretion, you will be asked to repeat some of the class – ranging from 2 major field trips (Rock 2 and Snow 2) to the entire course at a significant discount. To request an extension please use the online graduation petition.

WFA requirements must be completed within 6 months of the original class graduation date.

The Foothills Branch Basic Climbing Committee has the authority to grant or deny requests for one-year extensions. No extensions beyond one year will be considered.

Appendix 1 – Mountaineers Board Policies on Harassment and Problem Behavior

Policy Statement

It is the policy of the Mountaineers that harassment shall not be tolerated.

Application

1. The Mountaineers is committed to maintaining an environment within our organization and during our sponsored activities that is free of verbal, physical and visual forms of harassment so that everyone can enjoy our club activities in a productive, respectful and dynamic environment.
    - The Mountaineers does not allow harassment of any kind by one member towards another including harassment based on gender, sexual orientation, race, color, national origin, religion, age, disability, or marital or veteran status.
    - The Mountaineers does not tolerate harassment by one member towards another whether the member is a leader, volunteer, trustee, or officer.
2. Members who violate this policy may have their membership privileges restricted, up to and including expulsion.
3. The Mountaineers wants to prevent harassment from occurring and will take immediate and appropriate action when we know that harassment has occurred. To do this, however, we need the cooperation of all members at all levels as described in "Responsibilities."
4. The Mountaineers will promptly and thoroughly investigate claims of harassment.
    - The Executive Director will use his or her judgment to determine how to accomplish a timely, fair and effective investigation.
    - Complaints of harassment will be handled with sensitivity, discretion and confidentiality to the extent allowed by the circumstances. Generally this means that allegations of harassment are shared by the investigator with those who have a need to know (such as witnesses or members of certain board committees, such as the Executive Committee so that The Mountaineers can conduct an effective investigation and take appropriate remedial action.
    - The complaining member is usually requested to provide as many details as possible, such as the dates(s), location(s), names(s) of witnesses, or information about the alleged offender(s).
    - If The Mountaineers determines that a person may have helpful and relevant information, the person will be interviewed.
    - During the investigation, steps may be taken, when appropriate, to minimize contact between the complaining member and the alleged offender.
    - After the investigation is completed, The Mountaineers will share its findings with the complaining member, the alleged offender, and, if appropriate, others directly concerned with the incident or the investigation.
5. If The Mountaineers concludes that harassment occurred, prompt and effective remedial action will be taken.
    - This may include limiting the membership activities of the harasser and other actions to remedy the effects of the harassment and prevent further harassment.
    - If expulsion is recommended, such action will be referred to the board as described in the bylaws.
6. No action will be taken against any member, who in good faith files a complaint of harassment or assists in the investigation of such a complaint, solely because the member filed a complaint or assisted in an investigation.
    - Members who believe they have been retaliated against for having reported harassment or participated in an investigation must promptly report any concerns about retaliation either to the person(s) who are conducting the investigation, or if the investigation is concluded, to the Executive Director.
    - Concerns about retaliation will be investigated.
    - Appropriate corrective measures will be taken if allegations of retaliation are substantiated

Responsibilities

Each member is responsible for supporting and adhering to this policy.

- Members should never tolerate inappropriate behavior. They should make their feelings known to the offending person. In many cases if a member makes his or her feelings known to offending persons, tells them the conduct is not appropriate, and asks them to stop, this may take care of the situation.
- However, if any member is not comfortable doing this, or has tried doing this but the offending behavior has continued, then the member must promptly report any offending behavior, whether such behavior is directed towards them personally or to other member, to The Mountaineers' Executive Director. Reports of offending behavior must be made as soon as practical.
- Members are strongly encouraged to report concerns about harassment before offensive behaviors become severe or pervasive, as The Mountaineers prefers to stop harassment before it escalates. Group leaders, volunteers, board members or officers who know or receive reports or complaints of offending behavior must promptly notify the Executive Director so that appropriate action can be taken.

The Executive Director is responsible for administering this policy.

Examples of Harassment

In general terms, harassment is a knowing and willful course of conduct directed by one member towards another that under the circumstances seriously alarms, annoys, harasses or embarrasses the person towards whom the conduct was directed. However, constructive criticism, offered appropriately during activities or courses, though it may be embarrassing, is not harassment.

Examples of harassment based on gender, sexual orientation, race, color, national origin, religion age or disability can include, but are not limited to:

- Cartoons or other visual displays, like objects, pictures or posters, that depict these groups in a derogatory way; or
- Verbal conduct, including making or using derogatory comments, epithets, slurs and jokes about racial or religious groups, the disabled, or a person's ethnic or national origin

Sexual harassment is generally defined as unwelcome sexual advances, requests for sexual favors, or other visual, verbal or physical conduct of a sexual nature when:

- Submission to such conduct is made either explicitly or implicitly a term or condition of participating in a club activity;
- Submission to or rejection of such conduct affects course enrollment, graduation, on-going participation; or
- This type of conduct creates an intimidating, hostile or offensive environment for club activities.

Sexual harassment includes harassment based on another person's gender or harassment based upon pregnancy, childbirth, or related medical conditions. It also includes harassment of another member of the same gender as the harasser.

Examples of sexual harassment include, but are not limited to, the following types of behavior:

- Unwelcome sexual advances, like propositions for sexual favors;
- Excessive, one-sided, romantic attention in the form of requests for dates, love letters, telephone calls, emails or gifts;
- Making or threatening reprisals, after a member has turned down a sexual advance;
- Visual or physical conduct, like leering, making sexual gestures, or sharing pornography or other sexually suggestive objects, pictures, cartoons, calendars or posters;
- Verbal conduct, like making or using sexually derogatory comments, epithets, teasing or dirty jokes of a sexual nature;

- Graphic verbal or written comments (including emails or other electronic documents) about an individual's sex life or body;
- Sexually degrading words used to describe an individual;
- Suggestive or obscene letters, emails, notes or invitations; and
- Unwelcome physical contact, including pats, hugs, brushes, touches, shoulder rubs, assaults, or impeding or blocking movements.

Note: Members from time to time may experience other problematic behavior that is not harassment, but that nevertheless intrudes on the enjoyment or safety of others. Such problem behaviors are addressed by the board policy called "Problem Behaviors."

Calendar of a Typical Basic Student

Full/Multiple Day Activity	Required activity	Evening activity	Half Day Activity

Students will need to compelete **Wilderness First Aid**, which is 2 full, consecutive weekend days, plus a weeknight scenarios session, and **Wilderness Navigation**, which requires 11-14 hours of self-paced online study, a 3-hour weeknight workshop, and a full-day field trip. Both of these courses require spearate registration and additional costs. **Students should complete these before the Snow 2 Field Trip.** Students will also need to do a **Stewardship** activity in order to graduate. The Climbs listed on here are only examples and not scheduled activities for 2021.

December	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
				Session 1															Field Trip	
				Redmond															Seattle	
January	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
							Session 2						Session 3			Conditioner				
							Redmond						Online			Mount Si				
February	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	
					Session 4											Session 5			Field Trip	
					Redmond											Seattle			Seattle	
March	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
	Session 6				Session 7						Session 8				Field Trip					
	Redmond				Redmond						Redmond				Seattle					
April	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
								Session 9						Session 10						Field Trip
								Redmond						Online						Leavenworth
May	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
	Field Trip					Session 11				Snow 1 Field Trip		Session 12						Session 13		Tooth Climb
	Leavenworth					Online				TBD		Redmond						Redmond		Cancelled rain
June	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
							Snow 2 Field Trip			Final										
							Mt Baker			Seattle										
July	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
	Rainier Climb																Tooth Climb			
	Cancelled w/winds > 60 mph																Climb rescheduled 3 times due to weather			
August	1	2	6	7	8	10	11	12	13	14	15	17	18	19	20	22	23	24	27	30
			KT Climb	SEWS Climb																
			Cancelled due to fire																	