



Mountaineers
Basic Glacier Travel
2024 Student Handbook

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Introduction

Welcome to the Basic Glacier Travel Course. Our experienced group of volunteers can't wait to get started. The methods and techniques you learn, skills you develop, and experience you gain from completing this course will give you a sound basis for safe and enjoyable mountaineering.

The Glacier Travel course is designed specifically for those with some previous climbing/scrambling experience who want to learn the basics of safe glacier travel. This course will cover ice axe use, roped glacier travel, crevasse rescue, trip planning, training, rappelling and gear selection that is appropriate for late spring/summer glaciated peak climbing. It should be noted that glacier climbs in the winter, while similar, are significantly more difficult and require more planning, and often require additional climbing techniques not covered in this course (these skills can be gained through the Intermediate Glacier Travel Course).

This course includes online classroom training in addition to practical skills lessons outside of the Program Center. All of the lectures and field trips are required in order to graduate from the course. Please note that there are currently NO planned make up sessions for any of these dates so students must be sure they can make ALL of these planned events. Exceptions can be made depending on circumstances.

Climbs that you will be eligible to sign up for are listed later in the course syllabus. This course does not cover rock climbing skills such as belaying, removing protection, or rock anchors. We have added two rappelling clinics that will allow you to go on climbs such as Shuksan and Sahale.

Glacier climbs will be offered later this year for students of this course. However, it should be noted that weather and conditions frequently prevent a successful summit and you may need to sign up for several climbs to complete the course.

The Mountaineers is a club, not a guide service. You will always practice and climb under the guidance of our experienced volunteer instructors, but as you progress you should be increasingly self-sufficient. You are responsible for your own safety and progress in the course and on climbs.

- Good physical fitness and conditioning are necessary for your safety and enjoyment.
- Don't be afraid to ask questions or ask for help. Your instructors want you to succeed. Have a positive attitude; seek help and information when needed.
- Enjoy the alpine environment without loving it to death. The Mountaineers are committed to conserving the wild places where we play. Be environmentally responsible.
- Get involved! Mountaineers activities are run entirely by our volunteer members – and that now includes you. Seek out group conditioners; participate in skills sessions, volunteer to help with other activities. Making connections is a great way to meet people and to find out about and get on climbs.

Skills Practice Nights

Training/practice sessions are offered at the Program Center most Monday evenings, usually starting about 6pm. It's an 'open gym' style with signups online and there will be instructors there to help with the skills you need to work on. These work great as preparation for upcoming field trips. ***Please check the website to see if signups are available prior to going as the capacity of students allowed may change. If you need extra help in a skill, we have instructors we can coordinate with to make sure you are able to practice on another night or in another location.**

Staying in touch

There are some Web resources you will use extensively in this course:

Mountaineers.org

The Mountaineers web site www.mountaineers.org is where you will find and register for class field trips, climbs, and other activities.

The Mountaineers website is the central portal for all class information. It has dates and links to register for all the class meetings and field trips and preparation instructions for the activities. It includes online versions of all important class information and documents, including a pdf of this Handbook, as well as excellent articles and videos on equipment and our class Standard Techniques. If you have any questions about the class, please look here first. Please bookmark this: <https://mountaineers.org/>.

Facebook.com

We have established a Facebook group called "[Seattle Mountaineers Glacier Travel Course](#)", an optional but highly recommended forum to informally connect with former and current students, instructors and climb leaders. This is a place for sharing ideas, asking questions, coordinating conditioning hikes, and sharing photos. To join, send a request to the link above as it's a closed group. The FB group is NOT a replacement for the club website or official signups for classes, field trips or climbs. Please use the group only for communications related to the class, and be respectful. If you have problems or concerns about the course, these should be addressed to glacier.climbing.seattle@gmail.com

Additional Websites with helpful information:

www.animatedknots.com - Learn knots the fun and easy way with animated demonstrations.

www.bodyresults.com - A free monthly newsletter and more than 300 pages of climbing training tips and basic climb trip reports compiled by club members Courtenay and Doug Schurman.

Class Meetings

Lecture #1 – Meet & Greet, “What’s In Your Pack” Gear Overview,

Reading Assignment: Freedom 9, Chapters 1-4, and chapter 9 (pages 163-171)

Assignment: Review Gear List, be prepared with questions for your leaders and instructors

- Introductions, course introduction and requirements for graduation

- 'What's in YourPack?' Presentation of gear matrix and demo/QA on gear
- Conditioning for fitness
- Training and cross-training for Mountaineering objectives
- Nutrition and hydration on climbs

Field Trips

Field Trip #1 - Seattle Program Center: Knots/Ropes/Prusiking

Reading Assignment: Freedom 9, Chapters 9 and 18 (pages 394, 395, and 408-411)

- Demo and practice knowledge of knots required for glacier travel
- Demo and practice coiling ropes
- Demo and prusiking up a rope

Field Trip #2 - Seattle Program Center: Rappelling

Reading Assignment: Freedom 9, Chapter 11

- Demonstration from instructors on rappelling setup and rappels
- Practice rappelling setup on floor
- Practice rappelling setup and rappelling practice

Ice axe not necessary. Make sure you have a personal anchor and non/locking carabiners as well as hero loops for an auto-block. Belay gloves recommended, but not required.

Field Trip #3 - Seattle Program Center: Crevasse Rescue

Reading Assignment: Freedom 9, Chapter 18 (pages 403-408, and 411-418)

- Practice rappelling setup on floor
- Practice and demonstrate crevasse rescue (2:1 drop loop)
- 2:1 Drop Loop v. 3:1 Z-Pulley

Bring all necessary climbing equipment

Field Trip #4 - Ice Axe Arrest, Roped Travel, Crevasse Rescue, and Snow-camping

Reading Assignment: Freedom 9, Chapters 3 (pages 58-63), 16 (pages 390-403), and 18

- Self-arrest (ice axe arrest) and glissade intro
- Roped Travel
- Passing Pickets
- Snow Anchors
- Crevasse rescue on snow intro
- Snow Camping

Bring all gear, including group gear designated by instructor

Crevasse Rescue Evaluation - Seattle Program Center

- Demonstrate 2:1 drop loop rescue in a group of 3

Bring all necessary climbing equipment including extra clothing for practicing outside, you'll be on the ground

Field Trip Registration

Registration for each field trip will open on the Mountaineers.org website approximately one month before the first session. If you have schedule constraints which limit your choices, keep track of when registration opens and register early while all the dates still have openings. If for some reason you cannot make any of the sessions, consult with your leaders as soon as you find out.

Field trip information will be posted online for registration at least one month prior to the first session at mountaineers.org. Click on Get Outside & Explore and search under *Climbing*. Please be sure to review the field trip information early. You may need to purchase gear and will have assigned readings and prep work. If you come ill-prepared you may not be allowed to participate in the field trip.

Field Trip Code of Conduct

- Register for only one session at a time. You may register on the waitlist for another session you prefer, but please cancel your original registration immediately if you get in.
- If you will be late or must cancel due to illness or other unforeseen circumstances, email, text, or call the Field Trip Leader. Contact info is in the website activity listing.
- Arrive 10 – 15 minutes early to allow time for check-in, skills book p/u, and assignment.
- Treat the Instructors and Field Trip Leaders with respect. If you feel that you are not being treated well or taught appropriately, please see the Area Leader or Field Trip Leader.
- If you observe something that you believe is unsafe, immediately bring it to the attention of the nearest Instructor, Area Leader or the Field Trip Leader.
- Cell phone calls should not interrupt you or your companions during a Field Trip. Preferably turn the ringer off and refrain from unnecessary usage.
- Bring food, water and extra clothes; these will be long days. Often there will be no official meal breaks, and you will have to eat and drink between activities.
- Be friendly and helpful to your fellow students; this is not a competition.
- Learn and have fun!

Standard Techniques

In mountaineering, as in life, there is usually more than one good way. However, for safety and to keep things clear and simple for students and instructors, The Mountaineers have adopted a set of standard techniques for fundamental Glacier Travel skills. They are illustrated on the Mountaineers class website, described in more detail in Freedom 9, and taught online and at the Field Trips. For some skills, Freedom 9 may describe a variety of methods that are accepted by respected climbing authorities. Leaders and field trip instructors will show you The Mountaineers standard techniques, and we would like you to learn and use them during course activities. If you prefer to use an alternate technique at a field trip or a climb, please discuss it first with your field trip area leader or climb leader; this will avoid confusion and unnecessary safety concerns.

Graduation and Extensions

Requirements

After attending all class meetings and successfully completing all field trips, conditioning test and evaluations, you may sign up for actual climbs. To graduate from this course, you will need the following:

- Attend all lectures and field trips
- Successfully finish all skills assessments during field trips
- Finish a conditioner hike in stipulated time
- Summit one glacier climb
- Stewardship badge - support the outdoor environment with 1 day of stewardship
- Navigation badge
- Low-Impact Recreation badge ([online](#))
- Wilderness First Aid badge.
- Complete and submit [graduation application](#) Submit your graduation application as soon as you have completed all of the above requirements. The graduation ceremony, our annual Climbers Reunion, will be held in November. File your application by October 12 to ensure that you are recognized at the ceremony – *If restrictions are lifted by then this will be at the Program Center so we can all gather together - it's a fun event and you will want to be celebrating with your classmates.

Pending Graduation

If you have completed all graduation requirements except Alpine First Aid, Navigation, Low-Impact Recreation and/or Stewardship, you do NOT need to apply for extension (see below). Go ahead and [apply for graduation](#), but note which of the three requirements you lack. You will be graduated conditioned upon completion of those missing requirements, and you will be recognized at the Climbers Reunion. However, you may not participate in club activities requiring graduate status until all requirements are satisfied. Pending graduates have seven months to complete the requirements.

Extensions: Second Year Status

The Glacier Travel course is intended to be a one-year course, but can be completed in two years if circumstances require. Extension requests should be emailed to glacier.climbing.seattle@gmail.com.

Your application should state how far you have progressed in the course and why you could not finish this year. Specifically:

- How many of the field trips did you successfully complete?
- If you participated on climbs that did not summit. Give the peak name, date, and leader's name
- Have you completed first aid, navigation and stewardship?
- What circumstances kept you from completing the course?

You may apply for an extension at any time when you realize you will be unable to finish the course, but the deadline is November 2021. Due to Covid, exceptions may be made on a case by case basis.

Four Additional Graduation Requirements

1. Wilderness First Aid

A current backcountry First Aid certification is required for graduation. The easiest way and what most students do is to take Wilderness First Aid (WFA) through the Mountaineers. The fee is \$175. The course consists of a weekend Wilderness First Aid course and an evening practical scenarios session. See the Mountaineers.org activity listings "Get Outside & Explore" menu, then "First Aid" for Alpine First Aid course offerings. Sessions are offered throughout the year but space is limited. Students who wait until mid-season often find they cannot get into a WFA session before the October graduation. The lesson is clear: Get your first aid certification ASAP. Besides, you'll enjoy it. If you opt to get certification elsewhere, this must be a WFA 16 hour course and your training certification needs to be submitted to the Mountaineers Wilderness First Aid committee to get credit and a badge for having taken the course. There are a few places offering WFA in the Seattle area. [RMI](#) is a great resource for this and [CPR Seattle](#) offers a 16 hour course as well.

Other more advanced certifications may also satisfy the first aid requirement. Wilderness First Responder (WFR), Wilderness EMT (WEMT) and Remote Medicine for Advanced Practitioners (RMAP) are accepted. If you have questions, email Courtney Carolan (courtneyfigure8@gmail.com). You will need to supply a copy of a valid and current certification; additionally, you may need to complete an Wilderness First Aid evening scenario session (at no cost) to receive graduation credit. But do not wait until the last minute to ask, in case your certification does not satisfy our requirements!

Front-country medical professionals are encouraged to take the Alpine First Aid course to familiarize themselves with the basics of wilderness medicine and the standard curriculum taken by most climbing students. Or they may prefer to take a more advanced course, such as Remote Medicine for Advanced Practitioners (RMAP), to satisfy the first aid requirement. Front-country medical certifications do not provide sufficient training to handle remote medical emergencies. In addition, Basic CPR and Red Cross First Aid do not meet the graduation requirement.

2. Navigation

Navigation using map and compass is a critical mountaineering skill. You must have a navigation card or the equivalent before graduation. You get the card by taking The Mountaineers

navigation course listed online on the Mountaineers Web site. It is typically held in February, March, April and November and can be taken with any branch.

The course includes one evening workshop and one full-day field trip. Navigation cards are valid for three years, so if you already have one, perhaps earned while taking the alpine scramble or snowshoe courses, and it is current, you do not need to repeat the navigation course (but we encourage you to volunteer and help instruct the Navigation course).

Please note that you will be required to have a specific type of compass for the navigation course, as described on the Seattle Navigation Course Web page. Do NOT buy a compass without reading the guidelines! Further reading: **Freedom 9, chapter 5.**

3. Stewardship

The Mountaineers is the Northwest's largest outdoor activity club. We have a great impact on the wilderness environment we love and use, and we want it to be a positive one. As Mountaineers, it is important that we become stewards of the wilderness. This means using "Leave No Trace" travel and camping techniques and actively contributing our labor to environmental projects.

Toward this end, students complete a day of volunteer stewardship as a graduation requirement. The definition is rather broad, so you may choose an activity that appeals to your interests and fits your schedule. Usually it is one day of volunteer physical labor, and preferably it will relate to places used by The Mountaineers. Typical activities are trail work, habitat restoration, tree planting, or invasive species removal. Other types of activities may be accepted. If you have a project in mind and you are unsure if it qualifies, please contact glacier.climbing.seattle@gmail.com. For further reading on Stewardship, **Freedom 9, Chapter 8.**

To find stewardship activities, check The Mountaineers web site at: www.mountaineers.org/seattle/climbing/News_Events/Stewardship.html

Or contact the following organizations directly:

- Washington Trails Association: www.wta.org
- EarthCorps: www.earthcorps.org
- Mountains to Sound Greenway Trust: www.mtsgreenway.org
- Volunteers for Outdoor Washington: www.trailvolunteers.org
- Washington Wilderness Coalition: www.wawild.org
- Further reading on Leave No Trace: **Freedom 9, chapter 7.**

4. Low Impact Recreation Badge

The Low-Impact Recreation badge can be done [online](#) via the Mountaineers Website. At the Mountaineers, we believe venturing into the outdoors is an essential piece of the human experience. We go outside to wander and explore the adventurous spirit within ourselves. It's important to implement low-impact recreation skills to keep our wild places as sanctuaries for the human spirit; so our grandchildren can experience the sensation of discovering an untouched place.

Glacier Climbs

After attending all class meetings and successfully completing all field trips and evaluations, you may sign up for Mountaineers Glacier climbs and begin applying your skills. To graduate, you must reach one summit.

The climbs below are a sample of glacier climbs commonly listed in the Mountaineers system. If you are interested in joining another glacier climb, please check with the climb leader to ensure there is no technical rock components involved in it and also contact the glacier travel class administrators (Liana Robertshaw and Catharine Killian) at glacier.climbing.seattle@gmail.com) so you get credit for the climb.

- Mt Adams – Mazama Gl
- Mt Baker – Coleman Gl, Easton Gl, Boulder Gl
- Mt Shuksan – Sulphide route
- Clark Mt – Walrus Gl
- Mt Daniel – Lynch Gl
- Eldorado Peak - Inspiration Gl
- Glacier Peak – Kennedy Gl, Sitkum Gl, Vista Gl
- Mt Garibaldi – East Face
- Mt Hood – south side, Cooper Spur
- Overlord Peak
- Kololo –White Chuck Gl
- Little Tahoma – East Shoulder
- Mt Matier (BC) - NE Ridge
- Mt Rainier – Emmons Gl, Disappointment Cleaver
- Snowfield Peak – Neve Gl
- Wedge Peak (BC) – West Ridge
- Whitman Crest
- Sahale via Quien Sabe glacier
- Glacier Peak via Disappointment Peak Cleaver

Textbook

The text for the Glacier Travel course is *Mountaineering: The Freedom of the Hills*, 9th Edition (Freedom 9), published by The Mountaineers, published in several languages, sold all over the world and regarded as the definitive text on alpine climbing. The contributing authors are club members, and many will be your instructors and climb leaders. There are reading assignments in Freedom 9 for each lecture and field trip. You can absolutely use your Freedom 8 for the reading assignments.

Registering for Glacier Climbs, Field Trips and other Activities

Climbs, field trips, the Alpine First Aid course (AFA), the Navigation course and other events requiring registration will be set up as Activities on mountaineers.org (go to Get Outside and Explore/ Climbing). Open and closing dates for registration are posted, and registration is on a first come, first served basis. If your schedule dictates that you must have a particular date for a field trip, register as soon as the signup activity opens. Please take a few minutes to learn the search, registration and cancellation procedures described in the Help section on the website. DO NOT register for a Leader Permission only activity without first contacting the leader. This may prevent you from being eligible for future climbs with them.

Seminars

The Climbing Committee also offers seminars that are not part of the Glacier Travel course but may be valuable adjuncts to your alpine education. Watch for them on the Learn -> Find Seminars portion of mountaineers.org, in the semi-monthly Climbing Highlights e-newsletter which all students receive, and in the bi-monthly Mountaineer magazine. There may be modest fees for the skills seminars. The evening lectures are generally free of charge.

Physical Conditioning

You need not be a competitive athlete or marathon runner to succeed in this course, but you should be as fit as possible in order to increase your chance of success and maximize your enjoyment of the program. A climber in poor condition may slow the party enough to prevent ever reaching the summit, or even jeopardize party safety. Inadequate conditioning also can contribute to a loss of alertness and an inability to respond properly to the demands of the environment.

You will learn far more during the climbs and field trips if you can focus your attention on mastering technical skills taught in the course, rather than worrying about catching your breath. Be prepared to carry a 30-pound pack and cover 10 miles while gaining 4,000 feet of elevation on day trips or a 40-pound pack and cover six miles per day, while gaining 3,000 feet on overnight trips.

You are required to pass a conditioning evaluation by the last scheduled field trip in May to be eligible to go out on real climbs. This evaluation typically involves the equivalent of hiking 3,200' over 4 miles in under 2 hours, carrying 20% of your body weight or 25lbs (whichever is greater).

Bottom line—start your conditioning program right away if you haven't already done so. Here are some suggestions:

- Begin a consistent program of aerobic conditioning, such as jogging, cycling, cross-country skiing, stair climbing, elliptical training, etc. A typical regimen to prepare for climbing season would be to start with three 30-minute sessions/week at low to moderate intensity, gradually working up to 60 minutes each at moderate to high intensity, while including a 2+ hour endurance workout at low intensity on the weekend.
- A program of full-body resistance training to increase strength and balance in the core, legs and upper body is highly recommended. This is particularly important if you have had any previous problems with your back, shoulders, knees or hips. Many climbers use yoga and Pilates in addition to or in place of traditional gym weight training. If you are not experienced at resistance training, please consult a qualified trainer or instructor to develop a safe program appropriate for you.

- The best conditioning for alpine climbing is hiking uphill with a loaded backpack. At least twice a month (working up to every week if possible), do hikes with significant elevation gain. Gradually increase the amount of weight you carry in your pack, working up to at least your expected overnight pack weight. Helpful hint: load your pack with jugs of water - one-gallon weighs 8 pounds. Great training hikes along I-90 include Tiger Mountain, Rattlesnake Ledges, Mt. Si, Mailbox Peak, Granite Mountain, Pratt Mountain, and McClellan Butte.
- Indoor climbing walls like those at our Program Center, Vertical World, and Stone Gardens provide another type of workout. While indoor climbing is different from alpine climbing, the footwork and balance techniques you learn will help you with the rock climbing part of the course. Once you pass the belay portion of the course, you can climb on the indoor wall of the Program Center. Call in advance, 206-521-6000, to make sure the room isn't reserved and for other requirements for using the facility.

Climbing Conditioning Benchmark: At a minimum, be able to hike with a full day pack (ca. 25 pounds) up the Mt. Si trail (8 miles RT, 3400' gain) **or an equivalent hike with a full pack and the same approximate mileage and elevation gain in under 2:00**. Being able to do it twice is good preparation for the more strenuous glacier climbs.

Further reading: **Freedom 9, chapter 4.**

Clothing and Equipment

Clothing and equipment costs for this course will depend on what you currently own. You can keep the costs down by using items you already own, borrowing, renting, and shrewd shopping. The Mountaineers members enjoy membership benefits with many retailers. Full list of benefits is available here: <https://www.mountaineers.org/membership/benefits>.

The following is a brief overview of some of the required equipment.

Further reading on clothing and equipment: **Freedom 9, Chapters 2.**

Climbing Helmets

Only UIAA approved climbing helmets are acceptable. Bicycle, kayak, motorcycle, snowboard or other types of helmets are not acceptable because they are designed to specifications different from those needed by climbers. Points to consider when choosing a helmet:

- Protection from impact on top of head (rock fall)
- Protection to side of head (tumbling fall or pendulum)
- Retention of helmet on head (tumbling fall)
- Upward visibility not obstructed by brim
- Ventilation
- Adjustable fit to accommodate a bare head or bulky warm hat

Seat Harness

There are many seat harness designs available in climbing shops, and nearly all are acceptable for our class. Although you will be using your harness for glacier climbs, it should be designed for all types of climbing. A proper fit is critical. The harness must expand enough to fit over several layers of bulky clothing without binding, but when you have peeled down to t-shirt and gym shorts, you must be able to snug it up enough so that you cannot fall out.

Comfort is important, but there is a trade-off. Padded models are easier on your body while hanging from the rope, but are relatively heavy and bulky. Alpine style harnesses are made of unpadded nylon webbing. They are not as cushy, but are lighter and less bulky in the pack. With alpine climbing, you will spend many more hours carrying the harness in your pack than hanging in it. Each type has its devotees; try on several. Also, be sure to familiarize yourself with the harness manufacturer's instructions for fitting and use. A good alpine harness is one that you do not have to step through the leg loops to put on (difficult in crampons). The Black Diamond Bod and Alpine Bod are good examples of this type of harness.

Boots

Get general alpine mountaineering boots stiff enough to accept crampons. These are not the same as hiking boots; they are much sturdier with a less flexible sole. Try several brands to find the one that fits you best, and spend lots of time with the fitting. If they don't feel good in the store, they won't get any better on the trail. Plastic boots are great for glacier climbs, but not suitable as your only climbing footwear.

Crampons

Crampons must be suitable for alpine climbing. Get crampons after buying boots to be sure they fit well. They may be either step-in or strap-on, depending on what works best with your boots. Most crampons of this type are steel and have 12 points, with the forward pair protruding out in front of the boots.

Aluminum front-point crampons with only ten points are acceptable for our course. However, they are not suitable for high angle ice climbing, so if you go on to the intermediate course you may have to rent or buy another set. There are many options; the final selection is a matter of personal preference. Consider renting crampons before buying.

Ice Axe

Get help from an expert on this one. You want a general-purpose alpine ax. Specialized ice climbing tools or super-light trekking axes are not suitable for the Glacier Travel course. A length of 65 to 70 centimeters is right for most people, perhaps 75 cm for tall climbers who expect to do lots of glacier climbs. Buy a spike and pick guard for safety when the ax is tied to the pack. A general rule of thumb is to grasp the ice axe head in a self-arrest grip. The spike should not touch the floor and be about an inch above.

Packs

You will need a pack large enough to hold camping gear, food, clothing, and climbing equipment for a weekend. Generally, this means something in the range of 4000–5000 cubic inches (65-80 liters). Eventually you may also want a smaller pack for one-day climbs, but you can make do with just one large pack by choosing a model that cinches down smaller when only partly filled. A good climbing pack has

lots of external loops for lashing gear on the outside. There are many choices; be fussy about comfort. Some shops have rent-before-you-buy programs.

Prusik Material

When purchasing the perlon material, please ask that it be cut to exact length. It is a good idea to get different colors for the different prusiks to help distinguish which is which. The perlon will be used to make your prusik loops. Brands will vary - 5mm softer perlon makes a better friction hitch than a thicker or stiffer perlon. Use the guidelines below to determine the length of material you need for your height.

Climber Height	Waist Prusik	Foot Prusik
Less than 5'2"	5'	11'
5'2" - 5'8"	5'6"	11'6"
5'8" - 6'1"	6'	12'
6'1" - 6'6"	6'6"	13'

Single & Double-length Runners

Runners are loops of Nylon or Dyneema. You have a few options when purchasing runners.

Pre-Sewn Runners come already sewn into a loop. These are sold in measurements of the loop's length - A single-length runner is sold as 60-cm, and a double runner is 120 cm. Dyneema or Dynex runners are more lightweight and compact, but can be more expensive and are more prone to wear & tear. They also do not stretch as much so they are not as good for handling repeated dynamic/shock loads. Nylon is more pliable and has more stretch, and generally more durable, but is bulkier.

You can also tie your own Nylon Runners from bulk 1" or 9/16" tubular Nylon webbing cut by the foot. For a single runner, use a 5-foot length. For a double-length runner, use 9 feet of Nylon webbing. Ask that it be cut to exact length. Tie in a loop using a water knot.

It is a good idea to get different colors for the different lengths. This helps you distinguish which is which when grabbing for a sling.

Chest Harness

A chest harness is similar to a runner - it is simply a loop of Nylon webbing.

8-feet of 1" or 9/16" tubular nylon webbing. Ask that it be cut to exact length. Tie in a loop with a water knot. This will have to be adjusted to fit your chest so no pre-sewn options here.

Required Equipment Matrix

The equipment matrix is a guide for deciding what equipment to bring for various types of outings. As you gain experience, you will learn whether you are generally cold or warm in various conditions, and you will see which items you seem never to use and which items you always want to have. Based upon these insights, you will develop your own personal equipment matrix. For the duration of the class, however, please follow the guide below.

IMPORTANT: All personal equipment should be marked with the owner's name or initials in a prominent location to make identification easy in the event of loss, theft or when commingled with other people's equipment.

Carabiners and similar articles should be marked with paint, enamel, nail polish, or electrical tape in a distinctive color or pattern.

Required Equipment Matrix

Gear	Required?	Gear	Required?
<i>Required Equipment (X), Optional Equipment (O), Ten essential systems items (T)</i>			
<hr/>			
1" or 9/16" tubular nylon webbing as follows:		Mittens (wool/synthetic)	X
Three single-length runners, color A	X	Second pair mittens (optional)	T
Two double-length runners, color B	X	Mitten shells (over-mitts)	X
Chest harness: one 8 ft, color C	X	Day pack (frameless or rucksack)	O
5mm (recommended) or 6mm perlon as follows:		Overnight pack (internal or external)	X
Foot prusik (length per chart), color D	X	Compass (T)	T
Waist prusik (length per chart), color E)	X	Map of climbing destination (T)	T
Tie-off (hero) loop 4 ft, x 2 color F	X	Glacier glasses w/side shields (T)	T
Commercial seat harness	X	Sunscreen (T)	T
Personal Anchor	X	Ski goggles	O
Climbing helmet	X	Lip balm w/sun protection (T)	T
6 non-locking carabiners	X	Insulating sit-pad (short)	O
Belay Device (no Grigri)	X	Belay gloves	X
6 locking carabiners	X	Headlamp (T)	T
Rescue pulley (SMC, CR or Petzl Mini)	X	Extra batteries for headlamp (T)	T
Ice Axe	X	First Aid Kit (T)	T
Front-point crampons	X	Waterproof matches or lighter (T)	T
Wool or synthetic cap	X	Fire starter (T)	T
Sun hat or bandanna	X	Knife (T)	T
Long underwear (no cotton)	X	Food	X
Basic layers of long/short-sleeved shirts (wool or synthetic)	X	Extra food (T)	T
Parka (down/synthetic)	O	Water bottle (wide mouth) (T)	T
Windbreaker	O	Second water bottle (T)	T
Rain parka (T)	T	Water filter or purification (one per 2-3 climbers) (T)	T
Pants (wool/synthetic)	X	Emergency shelter (T)	T
Second pair pants (wool/synthetic)	O	Toilet kit	X
Rain pants	X	Sleeping bag	X
Gaiters (preferably long)	X	Insulating sleeping pad (long)	X
Socks (wool/synthetic)	X	Tent (can be shared) or bivy bag	X
Second pair socks (T)	X	Stove and fuel (one per 2 climbers)	X
Climbing boots	X	Pot (one per stove)	X
Spoon	X	Bowl and/or cup	X

Equipment Sources

Seattle is blessed with many fine mountain shops, and of course a lot of gear can be ordered online. Also check <http://www.mountaineers.org/membership/benefits.cfm> on the club's website for a long list of companies that offer special discounts for Mountaineers members.

Some stores (this is not an endorsement)

Arc'teryx	http://arcteryx.com	
Ascent Outdoors	http://ascentoutdoors.com	Seattle, Surplus, Rentals
Backcountry	http://backcountry.com	
Bentgate	http://bentgate.com	
Big 5 Sporting Goods	http://big5sportinggoods.com	
Campmor	http://campmor.com	
Eastern Mountain Sports	http://ems.com	
Eddie Bauer / First Ascent	http://eddiebauer.com	
ExpertVoice	https://www.expertvoice.com	Pro-deal discounts for Mountaineers members
Feathered Friends	http://featheredfriends.com	Seattle, Rentals
Federal Army & Navy Surplus	http://gr8gear.com	Seattle, surplus
Hilleberg the Tentmaker	http://hilleberg.com	Redmond
McHale Custom Backpacks	http://mchalepacks.com	Seattle
MEC	http://mec.ca	
Miyar Adventures	http://miyaradventures.com	Redmond
Moosejaw	http://moosejaw.com	
Mountaineers Marketplace	http://facebook.com/groups/377304859047281	The Mountaineers, Used
Nate's Surplus Army/Navy		Seattle, surplus, 206-767-4950
North Face	http://thenorthface.com	
Outdoor Research	http://outdoorresearch.com	Seattle, Rentals
Patagonia	http://patagonia.com	
Play It Again Sports	http://playitagainsports.com	Used
Pro Mountain Sports	http://promountainssports.com	Seattle
REI	http://rei.com	Rentals
Sierra Trading Post	http://sierratradingpost.com	
Summit Hut	http://summithut.com	
Tarptent	http://tarptent.com	
Wilderness	http://wildernessoutdoorstore.com	Bainbridge Island
Zpacks	http://www.zpacks.com	

Some repair shops (this is not an endorsement)

Chick's Shoes	http://chicks-shoes.com	Mercer Island, boots
Dave Page Cobbler	http://davepagecobbler.com	Seattle, boot and shoes
Rainy Pass Repairs	http://rainypass.com	Seattle

CLIMB ON!

Glacier summits can be elusive in the Pacific Northwest. Weather, route finding problems, snow conditions, and bad karma will sometimes keep you from summiting. Therefore, the best strategy is to plan several attempts, and to schedule them as early in the season as you can. Because glacier climbs are generally the hardest summit to achieve, plan to schedule two or three.

Selecting Your Climbs

You will spend the first half of the year developing skills and getting in shape for climbing, but not all students will want to start off climbing at the same level. There is a considerable range of difficulty among the climbs offered. Choose trips in your comfort zone, being realistic about your physical and technical abilities. Not all climbs are for all climbers.

Getting on Your Climbs

Your fellow students will be competing with you for space on scheduled climbs. That climb you carefully selected may be full before you can sign up. Additionally, instructors who are leaders post climbs specifically for Glacier Students. These climbs will be full prior to even being posted. Here are some strategies to help you get your summit:

- Check the listings frequently: found under “Get Outside & Explore” at mountaineers.org.
- Use the wait list: We discourage last minute cancellations but they happen, and then the leader will try to fill the roster from the waitlist. If you are near the top of a wait list, you might try emailing the leader to say you are packed and ready for a last-minute call.
- Be opportunistic: If the climb you wanted is full, look for other climbs that may still have openings. A peak you never heard of may turn out to be a wonderful adventure.
- Check back: Return to the website as the climb date nears to see if cancellations have created openings on any climbs.
- Check other Mountaineers branches: With other branches, signup is usually done by contacting leaders directly. Their contact information is in the online activity listing, and they are often willing to take Seattle students.
- Check the Glacier Facebook Page: Leaders sometimes post there when looking for students to fill a roster.
- Do NOT attempt to sign up on a 'Leader Permission Required' climb without reaching out to the leader first and getting permission. If you do this, there is a chance that the leader won't allow you on another climb in the future.

The Climbing Code

Participants on all Mountaineers sponsored climbs must adhere to the climbing code:

- A climbing party of three is the minimum, unless adequate prearranged support is available. On crevassed glaciers, two rope teams are recommended.
- Carry the necessary clothing, food, and equipment.
- 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 turning back.
- Leave the trip schedule with a responsible person.
- Follow the precepts of sound mountaineering as set forth in textbooks of recognized merit.
- Behave at all times in a manner that will reflect favorably upon mountaineering and The Mountaineers.

Club Standards

All members of The Mountaineers, in order to attain the club's purposes—to explore, study, preserve and enjoy the natural beauty of Northwest America—in spirit of good fellowship shall subscribe to the following:

- To exercise personal responsibility and to conduct themselves on club activities and premises in a manner that will not impair the safety of the party, or prevent the collective participation and enjoyment of others.
- Private property must be respected.
- The use of alcohol and other drugs or medications, when incompatible with The Mountaineers activities because of their effects on ability and judgment, is prohibited when such use would affect the safety of the party or impair the collective participation and enjoyment of others.
- To enter the outdoors as a visitor, leaving behind no debris, environmental scars, or other indications of their visit, which would reduce the enjoyment of those who follow.
- Pets, firearms, or any other items which will impair the safety or enjoyment of others shall not be brought on The Mountaineers premises or taken on club activities.
- To obey those specific regulations imposed by the Board of Trustees, Branches and Divisions of The Mountaineers, which are necessary to implement the above.
- To minimize the environmental impact on the outdoors by using campfires only in properly designated areas and extinguishing them completely after use; conducting human sanitation and washing away from watercourses; and carrying out all solid waste.

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

In Case You Are Late Returning - Reporting an Overdue Climber (Or Not)

Climbs are often long and strenuous, take place on Mother Nature's terms, and are done with safety as the paramount concern. As a result, on some climbs the party may be late returning home. Occasionally, climbers must bivouac for an additional night and not return until the following day. For this reason it is important that you advise your spouse, parents, close friends, or co-workers of your plans and the proper procedure for reporting an overdue climber.

Best not to promise return by a certain time. Non-climbers may have an exaggerated idea of the dangers involved in our sport and may fear the worst if you are late even by a few hours. Climb leaders have been chosen for their technical ability, reliability, and leadership qualities. They can perform or assist with proper first aid and mountain rescue procedures. They designate someone to notify club officials if the party will be late returning or does not return by a designated time and day. Therefore, if a party is overdue or if the climbing party sends someone out, the proper rescue procedures will be initiated and the families of the party members will be notified.

Family and friends should not call rescue authorities directly if a climber is overdue on a climb. If the climber has not phoned or returned home by noon the following day, they should call the following:

Seattle Mountaineers Emergency Line: (206) 521-6030. Review the page Reporting an Overdue Climber on the Mountaineers web site.

Please be assured there are always enough people monitoring the climbs and activities that should rescue personnel be required, the student's family or friends need NOT initiate the rescue process.

For each climb, you may wish to make a copy of this page, filling out the form below, and leave it with your designated contact. Please discuss this procedure with your contact person prior to going on field trips or climbs.

TO BE LEFT WITH A RESPONSIBLE PERSON

Mountain/ Route:

Climb Date(s):

Expected Return Date & Time:

Nearest Ranger Station:

Mountaineers Climb or Private Climb (circle one)

Climb Leader & Phone Number:

Carpooling With, & Phone Number(s):

Other Party Members (with Phone Numbers):