

# Course Description

## North Cascades Mountaineering

### Features Of This Course:

- Glacier travel and peak ascents
- Elevations up to 10,700'
- Rugged bushwhacking
- Strenuous off-trail travel on steep terrain
- Route length: 75-120 miles
- Snow and ice mountaineering
- Extensive travel above tree line
- Limited rock climbing
- Minimum age: 17
- Average age: 20
- Average group size: 10 students/ 2 instructors

### The Expedition

For 29 days you will travel through Washington's North Cascades. Characterized by rugged beauty, this steep mountain range is filled with jagged peaks, deep valleys, cascading waterfalls and vast glaciers. More glaciers are found here than anywhere else in the lower 48 states. You'll spend the early days of your course in lush, old growth forests of cedar and Douglas fir, working up to the jagged, snow-clad peaks of the North Cascades. You'll work hard traveling over steep, rocky terrain with all your gear on you back, and you'll learn the skills you need to climb in the mountains long after the end of your course.

Early season courses (May-June) will likely spend much of their time on snow, while later courses (July-August) may experience more time on the bare ice and rocky moraines of the lower glaciers before gaining firn line and snow-covered glacier. Regardless of your route, you will learn the skills you need to live and travel responsibly and efficiently in challenging mountain terrain.

Your development as a mountaineer will begin with the basics. Learning to live well and to care for yourself, your fellow expedition members, your equipment and the environment in a variety of conditions are the foundations for advanced mountaineering and the focus of our core curriculum. As you travel through old growth forests with an astounding diversity of plant and animal life, you'll master camping, cooking and basic travel skills. En route, your group might be challenged to negotiate slopes of loose scree and dense vegetation.

Once you reach the glaciers you'll move into the climbing curriculum, beginning with knots, rope handling, rope-team travel, self-arrest and belaying. You'll spend time practicing these skills and learning to live and travel responsibly in glaciated terrain. The hiking distances covered daily will be short at first, giving everyone a chance to get used to the heavy packs and rope team travel.

As your experience builds and you move into more technically demanding terrain, you'll be exposed to more advanced skills such as crevasse rescue, route finding on a glacier, avalanche hazard assessment, and the use of 4<sup>th</sup> and potentially even 5<sup>th</sup> class rope systems for protection during more exposed travel. There will be days set aside for classes, skill practice or peak ascents when you do not move camp, but you should be aware that a number of factors often preclude successful summit attempts. Your course will take advantage of every opportunity to prepare you for future expeditions in glaciated ranges; the primary focus of this course is the development of skills and judgment, not "peak bagging."

Group dynamics and leadership are other integral parts of our core curriculum. You'll learn how to live and work closely with your course mates while you travel through the mountains. Tolerance for adversity and uncertainty, a willingness to work hard, and respect for your peers will be critical to the success of the expedition as a whole. Because of the diverse and difficult terrain typically encountered on these courses, there may be fewer opportunities for student leadership on travel days than is common on most other courses at NOLS.



## **Student Independence**

On all NOLS courses students will be independent (unaccompanied by instructors) at various times. This includes time in and around camp such as while cooking or performing camp chores. Instructors may allow students to travel away from camp. Students often have independent unsupervised time, usually in town, before and after their course.

## **Independent Student Group Travel**

An emphasis of this course is the development of skills that permit you to be self-sufficient in remote backcountry areas. Our teaching progression for accomplishing this is carefully planned and executed. Initially travel groups, usually of four to six students, will include an instructor who will teach travel skills and leadership. Gradually, as you gain proficiency, the instructor will allow you to take on more responsibility and make more of the decisions. When you have demonstrated the necessary competency to the instructors, you may travel in student-led groups without instructors for a day at a time as you hike from camp to camp. We call this daily independent student travel, and it is an effective educational tool. It allows you to practice travel skills and leadership and gives you responsibility for the outcome while still having indirect supervision by instructors and the benefit of the NOLS support systems. This type of independent group travel is done while students are not on glaciers. Because much of the time on this course will be spent traversing glaciers, independent travel time will be limited.

This course may culminate in a Student Expedition. After successful practice with daily independent student travel and if your instructors think your group is ready, the instructors will help you divide into student expedition groups (usually three to six students each). With instructor oversight, each group will then select a leader and carefully plan and execute a multi-day independent student led expedition. This part of the course builds on the skills you've learned and practiced and allows you to travel without instructors for up to four days. Students are aware of where the instructors and the other student groups are planning to travel and camp. Each Student Expedition group will carry an emergency communication device that will allow students to initiate an emergency response in the event of a serious emergency. In most cases students will have a personal locator beacon, but in some situations they will have a satellite phone, cell phone, radio or possibly another type of device. The instructors with a satellite phone, or additional communication capability, may be up to 24 hours away from the students. Our students often say the Student Expedition was the highlight of their course.

## **Behavior on the Expedition**

Each person's values, beliefs and actions affect those of the rest of the group -- balancing these is an important part of expedition behavior. We want you to have a positive and healthy learning environment. Therefore we expect all students to respect the values and beliefs of other members of the expedition. The best expedition members have positive attitudes, apply new skills and ideas at the first opportunity and come motivated to work hard with people they have just met. They care about others, place the welfare of the group equal to their own, and understand that an expedition succeeds when all its members complete each day successfully. To help ensure a healthy environment for all, we ask that people do not use tobacco products. Further, NOLS will not tolerate harassment or the use of drugs and alcohol on any course. If you feel your values or beliefs are not being respected, by NOLS' staff or students, it is essential that you speak up so the issues are addressed.

## **Weather and Other Challenges**

Mountain weather is fickle. On any given day, temperatures may range from below freezing to T-shirt conditions. Courses may experience snow, rain, or long stretches of sun and blue skies. The presence of El Nino or La Nina conditions across the Pacific Ocean can be cause for large swings in weather patterns in the Pacific Northwest.

Mountaineering in the Pacific Northwest, while it can be tough, remains a great learning ground for future mountaineering of all types. You will negotiate glaciers, crevasses and icefalls and walk on loose, shifting boulders. Much of the traveling is on steep terrain requiring precise movement. Often you'll be off-trail bushwhacking through thick forests or scrambling in boulder fields. Early summer season courses may spend much of their time camping and traveling on snow. You will traverse steep slopes of snow, loose rock or grass, and grunt up high mountain passes, at times gaining 4,000 - 5,000 feet in a day. The heavy packs and steep terrain can be hard on your knees and feet if you are not used to this type of travel. You'll be miles from the amenities of civilization. Telephones, ambulances, and hospitals may be several days away.

Identifying and managing mountain hazards—falling rock, weather, moving water and steep terrain (risks that could result in injury or death)—will be a constant theme in our instruction. Camping may involve dealing with swarms of mosquitoes or hanging your food to keep it away from bears or other animals. Managing risks and assuming responsibility for yourself and your colleagues will help make your expedition in these wild and beautiful mountains healthy and fun.



## Physical Challenge

You can expect that your group will encompass a wide range of physical abilities and comfort limits. While many of our students are both mentally and physically challenged on their course, some find that they were not as challenged as they had expected or hoped they would be. Assess your fitness level well in advance of your course and review the fitness recommendations below to design an appropriate fitness goal and plan for yourself. Stick to it! You will get so much more out of your course if you can dedicate energy to things other than just making it to camp in good style on a moderate hiking day.

## Medical Issues

Please be aware that chronic knee or ankle ailments have been a source of problems on this course in the past. If you have a history of such problems, please contact us for a consultation. It is also important that the NOLS admission office be advised of any updates to your medical records.

**Medications:** Please be certain that you have a current diphtheria-tetanus immunization. Also, we need to know if you have had an adverse reaction to Erythromycin, Vicodin, Keflex, Ibuprofen, or Aspirin. If you plan to take any medications during the course, please be sure that they are listed on your health form, that you are aware of possible side effects, and that you discuss them with your expedition leaders.

## Personal Electronics

A key element to a NOLS education is time spent in wilderness. The benefits of this include being closer to nature, time away from society and civilization, and being in an environment where natural forces predominate and students have the opportunity to develop good judgment and practice self-reliance. NOLS does not permit students to use personal cell or satellite phones or other communication devices including personal tracking devices (e.g. SPOT), while in the field. Additionally, students are not permitted to take personal music players (iPods, MP3 players, CD players, etc). Instructors will be carrying sufficient communication equipment (usually a satellite phone) to handle any emergencies that may arise.

## Fitness Recommendations

You will have long, busy days on your expedition; your fitness goals should focus on your ability to sustain a moderate level of exertion for hours on end rather than “quick sprints.

Focus on a well-rounded routine that emphasizes stamina, endurance, flexibility and strength. Finally, don't ignore the need for balance; this will serve you well in moraine and boulder fields where the ability to quickly find your center of gravity as you move from one step to the next will enable you to dance, rather than stumble your way through. Play with it. Good luck, and have fun!

## General Guidelines

Dr. Phil Watts, exercise physiologist at Northern Michigan University, has conducted research in conjunction with NOLS mountaineering courses in the North Cascades. The results of this study, and consideration of established principles of physical conditioning, have enabled development of the following general guidelines, which should be helpful in evaluating and improving your physical condition.

**Aerobic** (or endurance) capacity is a major factor in mountain travel and most course activities. An individual should have an aerobic capacity that would enable him/her to **run 1.5 miles in 11 minutes or less** to be well conditioned for extended mountaineering at moderate altitudes. Another useful assessment guideline is that an individual should be able to **run 5-6 miles in 40-55 minutes** or less, three times a week.

If you recognize a need for additional aerobic conditioning, begin at least 8-10 weeks prior to the start of the expedition and adhere to the following **F.I.T.T.** principle:

- **Frequency** - Exercise 3-5 times per week.
- **Intensity** - Exercise at about 60-80% of maximum effort. Use the “talk test;” if you are breathing so hard that you can't converse with a partner, you're working too hard - slow down a little.



- **Time** - Exercise sessions should involve an expenditure of about 300-600 calories per session. That's approximately the equivalent of: 3-6 miles of jogging; 10-25 miles of bicycling over rolling terrain; or 20-60 minutes of other aerobic activities such as cross-country skiing, swimming, etc.
- **Type** - The activity selected should be "total-body" - involving the large muscle groups - and should be rhythmical and continuous; it should not be conducted in spurts like sprints and many team sports.

Most efficient gains will result from using training activities that are "specific" - that is, like the activity for which you are training. Since hiking is primarily a lower body activity, running and cycling are perhaps of more benefit than swimming, for example. Progress gradually to avoid over-stress and injuries. Work on Time (duration) first, and then begin to increase Intensity.

**Flexibility** (range of motion) exercise is also important and should involve stretching for all muscle groups. Select a number of stretches for all areas of the body. Stretch "easy" - don't bounce or over stretch. Maintain each stretch for 10-20 seconds and don't hold your breath or strain. You should feel tension not pain. Stretching should be done before and after each exercise session.

Developing adequate upper body **muscular fitness** for your expedition can be relatively simple. Select a number of basic exercises for the upper body and abdominal areas such as push-ups, pull-ups, rope climbing, sit-ups, etc. Perform as many repetitions of each exercise as you can, resting between each exercise, then repeat. Do this basic workout three times per week or on alternate days. If you prefer working out with weights, follow the directions for the equipment you will be using or consult a reputable physical fitness text. Use strength training to supplement your aerobic program, not as a substitute for it.

While everyone has a certain amount of energy stored in the body as fat, excess fat will increase the work intensity of all activities promoting early fatigue. Assessment of relative body fat usually requires one of several laboratory procedures and may not be available to many individuals. If you think you are significantly overweight, consult your physician about this well in advance of your course. Crash dieting would be a poor method of losing weight before your course. A good program of aerobic exercise, as described above, and improved nutritional habits will usually suffice.

### Course Objectives

Each course is unique due to variables such as route, group dynamics, fitness levels and environmental conditions. Within the given parameters, we intend to accomplish the following objectives in five areas:

#### Risk Management, Judgment & Decision-Making

NOLS teaches wilderness visitors to practice responsible habits that promote the health and well being of self and others. Each student is expected to:

- Demonstrate knowledge of the hazards in a mountain environment
- Consistently perform specific techniques taught on the course to reduce or avoid hazards
- Describe an emergency plan for a group in the outdoors
- Demonstrate the ability to perform basic emergency procedures to support a patient until help arrives
- Use experience and judgment to implement sound decisions and follow them through to completion
- Display sound judgment and an awareness of group and self limits

#### Leadership

Students are exposed to the theory and practice of outdoor leadership, teamwork, and expedition behavior. At NOLS, expedition behavior involves commitment to the group, acceptance of others, and cooperation to achieve goals. Each student is expected to:

- Work effectively as a member of a team, displaying a positive attitude despite hardship
- Effectively communicate ideas and concerns on an individual and group level
- Accurately identify personal strengths and areas for growth in developing outdoor leadership
- Take responsibility for learning through setting and attaining personal goals
- Take initiative in teaching and leadership roles with peers
- Respond to problem situations using decision-making and planning skills
- Provide effective oral and written feedback



## **Outdoor Skills**

NOLS students learn to live and travel in mountains within a framework of personal health and care of the environment. Each student is expected to:

- Live comfortably in a mountain environment, learn to camp, cook, and dress for a variety of conditions
- Travel competently in mountainous terrain using map and compass skills, off-trail navigation, hazard evaluation, and route-finding techniques
- Accurately assess skills, strengths and endurance in self and others and conservatively apply those limits to given situations

## **Mountaineering Skills**

While advanced skill emphasis will vary, students can expect to be exposed to a complete foundation of basic glacier mountaineering skills and will be expected to:

- Correctly tie fundamental climbing knots and display efficient rope-handling techniques.
- Demonstrate appropriate crampon and ice-ax techniques for snow, ice and mixed terrain.
- Display appropriate belay skills in a variety of mountaineering systems (rope-team, running belay, etc)
- Competently build simple snow and ice anchors.
- Recognize a responsible route through crevassed terrain and where avalanches are a hazard.

## **Environmental Studies**

An integral part of every NOLS course is to raise students' awareness of their impact on the natural world. Each student is expected to:

- Consistently perform minimum-impact living and travel skills by following Leave No Trace principles
- Display basic natural history observational and interpretive skills and use them to demonstrate an understanding of and respect for the course environment
- Discuss the history and potential solutions relevant to pertinent environmental issues
- Demonstrate basic knowledge of and respect for local cultures
- Reflect on the transference of wilderness ethics and practices into daily personal and professional life

