NATIONAL SKI PATROL SYSTEM, INC.

AVALANCHE INSTRUCTOR'S MANUAL

SECTION 1

PROGRAM OVERVIEW
(2023 REVISION)

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Dedication

This manual is dedicated to all NSP avalanche instructors who have donated endless hours of their time to educate patrollers, rescue professionals, and the general public in avalanche safety and rescue. Undoubtedly many lives have been saved due to their commitment to the NSP avalanche program.

Thank you to all who support this very valuable program!!!

National Ski Patrol System, Inc.

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This section is a collection of separate documents loosely grouped in categorized archives (zip files). Within each archive, files are arranged in alphabetical order with no page numbers assigned. Instructors are encouraged to download, unzip and arrange the files in a manner that best suits them. Users of earlier versions of the MAC OS may need to use third-party software (e.g. Stuffit) to manage Windows-based ZIP files. The current MAC OS should be able to open them.

OVERVIEW

Introduction

This manual serves to support all aspects of NSP Avalanche Program quality. It provides guidelines for managing the NSP avalanche program at all organizational levels and provides course planning, delivery guidelines and resources to NSP avalanche instructors for consistent, high quality avalanche education.

NSP avalanche program standards, guidelines, and procedures are reviewed and approved by the NSP National Avalanche Committee. Curriculum standards and guidelines meet or exceed those set forth by the American Avalanche Association. The NSP National Education Committee and NSP Board of Directors approve this program as an appropriate standard of training for NSP members.

Subordination

The content of this manual is subordinate to applicable guidelines contained in the most current edition of *NSP Policies and Procedures*, which constitutes the approved national policies of the National Ski Patrol System, Inc.

Disclaimer

The information and principles presented in this manual may not be applicable to all situations that arise in the day-to-day operations of a given snow sports area or center. Actual patrol operations, including avalanche mitigation work and delivery of emergency services to ski areas or directly to the public, are under the direction and control of ski area management or public agencies. Area management's standard operating procedures and regulations for day-to-day patrolling activities should not be confused with NSP education program standards or membership requirements.

The National Ski Patrol has no control over how the knowledge and skills taught in its education programs will be applied. This organization, its board of directors, its employees, and its members assume no liability, whatsoever, arising out of, or related to, any damage or injury that may result from the application of the information and principles presented in this manual.

Students with Disabilities

NSP education programs are not subject to laws regulating *public accommodations* or similar terms. Nevertheless, wherever possible, NSP desires to provide its education programs to all eligible persons who can meet the reasonable requirements of the program. Within the significant time and budget constraints of a non-profit organization, NSP instructors will strive to provide reasonable accommodations to students with disabilities. It is incumbent upon prospective students to bring relevant disabilities to the attention of the instructor, and to propose and work out a plan with the instructor for reasonable accommodations that will meet the requirements of the program and the needs of the student.

The instructor has discretion to restrict the participation of a student in all or any part of the program. For instance, the instructor may restrict participation where, in the instructor's judgment, the student cannot complete the program objectives even with available reasonable accommodations, or the student's participation will be significantly detrimental to the completion of the program objectives by the other students.

NSP Avalanche Program History

Between 1938 and 1957, NSP patrollers received avalanche safety and rescue training through USDA Forest Service snow ranger courses. By 1957, when requests for course enrollment by NSP patrollers outpaced Forest Service avalanche school capacity, the NSP began conducting its own courses, using the Forest Service curriculum. The first NSP avalanche program outline (and predecessor to this manual) was published in 1959. The NSP course was called the "Patch" course, because graduates wore a rocker emblem above their NSP parka chest emblem in recognition of the achievement. The "Patch" course was taught only in avalanche terrain, and it took up to five days to complete. It was often co-taught by both NSP and Forest Service instructors to mixed classes of NSP and Forest Service personnel.

In the early 1960's, NSP avalanche training became a requirement for National Patroller appointment. This was problematic for divisions that had negligible avalanche terrain, so a shorter, more basic course was developed to meet this avalanche training requirement. According to the 1965 NSP Avalanche Instructor's Manual, "This course was specifically designed to be given in those areas where the avalanche hazard is low or non-existent." Those areas were specified as all of Central and Southern Divisions, plus southern portions of Eastern, Rocky Mountain and Far West Divisions. It was called the "Circle A" course for the small, button-sized emblem that patrollers wore above their NSP parka chest emblem. Despite the fact that the "Patch" course and the "Circle A" course were designed for different geographical areas, and were not recommended to be sequential, completion of the Circle A course was sometimes locally required as a prerequisite where the Patch course was required.

In 1967, the USDA Forest Service and NSP co-developed and jointly administered the National Avalanche School (NAS), originally designed to qualify newly assigned Forest Service Snow Rangers in avalanche safety and rescue, many of whom had no prior avalanche education or experience. The first course was conducted in 1969. Forest Service personnel had priority enrollment, but NSP avalanche instructors and other interested NSP members were able to

enroll on a space available basis. Both Forest Service and NSP personnel served as instructors at the NAS and certificates of completion were signed by the Chief of the Forest Service.

In 1982 both the NSP and Forest Service turned management of the National Avalanche School over to the National Avalanche Foundation (NAF), a nonprofit subsidiary of the National Ski Areas Association (NSAA). NSP continued to administer the school on behalf of the NAF until 2001. Though divested of direct control over operation of the school, both NSP and the Forest Service still have representatives on the National Avalanche Foundation Governing Board.

By the early 1990's the Forest Service/NSP avalanche safety and rescue education model had become nearly universal at U.S. ski areas with significant avalanche hazards ("Class A" resorts). Their ski patrols could efficiently mitigate avalanche and rescue operations. Resorts monitored and assessed in-bounds hazard and employed both passive and active mitigation methods to make them relatively risk free. If an inbounds incident did occur, highly trained patrol rescue teams with prepositioned equipment could be at the scene in minutes. Inbounds avalanche fatalities became rare.

At the same time, however, interest in out-of-bounds and backcountry snow recreation was increasing rapidly, with a proportional rise in the avalanche fatality rate. With incidents moving from resorts to backcountry, patrollers and other Search-and-Rescue (SAR) personnel were faced with extended travel to conduct avalanche search and rescue operations. Organized rescue teams usually took so long to mobilize and arrive on scene that "rescue" was usually a body recovery operation.

The concept of a different approach, focused on incident prevention by providing avalanche education to backcountry recreationists, began to take hold. Courses were offered in a variety of formats by individuals and organizations, each with their own ideas of what constituted appropriate avalanche education. There were no common standards by which to compare and evaluate their quality and effectiveness.

In 1999, the American Association of Avalanche Professionals, now known as the American Avalanche Association (A3), responded to this issue by publishing guidelines for educating recreationists. Those guidelines attempt to promote quality and consistency in avalanche education through consensus and collaboration among various avalanche education providers. Revised periodically, A3 avalanche education guidelines continue to perform this vital function.

The NSP Avalanche Program remained focused on patroller avalanche education but used A3 curriculum guidelines as a starting point for its own curriculum development. NSP did not develop curricula specifically oriented toward recreationist education until 2008. The NSP Avalanche Program uses its NSP system-wide standards and guidelines for instructor development and certification, and for program quality management.

Avalanche education for recreationists is a valid and important means for reducing avalanche fatalities, but it has not become a replacement for organized avalanche rescue. The rate of

avalanche incidents continues to rise and to involve organized search and rescue teams most of the time. Improved communications and mechanized travel now enable these teams to respond to incidents more rapidly than in the past. These teams usually have capabilities well beyond those of a victim's companions. NSP remains committed to providing necessary training for this function.

Since its inception in 1957, the primary goal of NSP avalanche education has been to promote safe enjoyment of snow sports and to help reduce the incidence of injury or death from avalanches. This may be accomplished by teaching people to: (1) recognize and avoid exposure to avalanche hazard; (2) increase survival chances if avoidance fails; and (3) rescue others. The program supports the NSP Mission and Vision by providing comprehensive education for all three approaches.

Avalanche Program Goal

The goal of the NSP avalanche program is to provide premier avalanche safety and rescue education, specifically designed for the needs of patrollers, mountain search and rescue teams and snow recreation stakeholders. To achieve this goal, the program provides diverse curricula appropriate for different stakeholder needs and different geographical conditions. The courses provided by this program are summarized in the table below.

Summary of NSP Avalanche Courses

Course	Summary Description
Avalanche Awareness	This is a public safety outreach presentation for winter recreationists who have a casual interest in avalanche safety. It exposes people to the nature of avalanche hazard and what they need to learn before venturing into avalanche terrain. It encourages them to take a Level 1 avalanche safety and rescue course. Prerequisite: none. Time commitment: flexible, 60-90 minutes. Grading: none.
Avalanche Senior Elective	This course introduces critical knowledge and skills taught in avalanche education courses. The goal of this course is to introduce critical avoidance skills such as terrain analysis, route selection, and decision making. This includes the importance of leadership and teamwork in the rescue skills, which needs to be immediate, but also needs to be methodical and coordinated. ***This course is a senior elective only and is not open to non-NSP members*** Prerequisite: none. Time commitment: flexible, approximately 8 hours. Grading: Pass/Incomplete/Fail based on written exam.

Course	Summary Description
Avalanche Companion Rescue	This course covers critical skills for all travelers in avalanche terrain. In most instances, survival depends on the ability of a party to find its own buried members within the first 15 minutes, sometimes augmented by nearby traveling groups that happen upon the scene. Emphasize the importance of leadership and teamwork; it is immediate but needs to be methodical and coordinated. Emphasize the importance of the witness when searching for members of another party. ***This course teaches Companion Rescue skills only and is not intended to teach other critical skills needed for safe travel in avalanche terrain.*** ***This course is not open to non-NSP members.*** Prerequisite: none. Time commitment: minimum 8 hours, 5 in the field. Grading: Pass/Incomplete/Fail based on written exam and evaluation of field skills.
Level 1 Avalanche Module 1 Avalanche Foundations	Level 1 Avalanche Module 1 (L1AM1) provides the classroom component of a Level 1 avalanche course. It introduces fundamental concepts and principles of avalanche hazard, safety, and rescue, but it does not include skill development in the field. It does not meet full Level 1 course standards and does not qualify as a prerequisite for enrollment in a Level 2 avalanche course. ***This course must include all appropriate curricula from the Avalanche Companion Rescue course.*** Prerequisites: none. Time commitment: minimum 8 hours of classroom instruction. Grading: Pass/Incomplete/Fail based on written exam.
Level 1 Avalanche Module 2 Avalanche Safety and Rescue Skills	Level 1 Avalanche Module 2 provides the field component of a Level 1 avalanche course. This module when combined with Level 1 Avalanche Module 1, completes a full Level 1 course for recreationists that meets guidelines established by the American Avalanche Association (A3). It covers basic avalanche problem recognition, including weather snowpack and terrain observation and evaluation; route selection, decision making, survival, self-rescue and small group rescue methods. ***This course must include all appropriate curricula from the Avalanche Companion Rescue course.*** Prerequisites: Level 1 Avalanche Module 1 within the previous three years. If Level 1 Modules 1 was taken more than 1 yr. prior to this course the prospective student must take a written exam ensuring they know the Module 1 material. Time commitment: minimum 16 hours of field instruction and practice. Grading: Pass/Incomplete/Fail based on evaluation of field skills.

Course	Summary Description
Level 1 Avalanche Module 3 Organized Avalanche Rescue	Level 1 Avalanche Module 3 is a specially designed curriculum to help prepare ski patrollers and other SAR personnel for organized avalanche rescue responsibilities. It introduces organized rescue principles and skills, management structure, special decision-making problems and strategies. It is considered to be the minimum level of rescue education for these personnel. This module is strongly recommended for all patrollers who may patrol or recreate at areas that have known avalanche hazard. Some divisions require this module as a requirement for senior classification. Some area patrols require this level of avalanche education as a condition of membership. Prerequisite: NSP Level 1 Avalanche Modules 1 and 2, or an equivalent full Level 1 avalanche course that meets A3 curriculum guidelines or refresher within the previous three years; FEMA IS-100.B, IS-200.B and IS-700.A course certification. Time commitment: approximately 8 hours of instruction, at least 60% in the field. Grading: Pass/Incomplete/Fail based on final written exam and field skill evaluations.
Level 1 Avalanche Module 4 Avalanche Fundamentals Refresher	Level 1 Avalanche Module 4 is a one-day module designed to upgrade and refresh Modules 1 and 2 knowledge and skills. It includes both classroom and field components. Prerequisite: Prior completion of NSP Level 1 Module 2 or any full Level 1 avalanche course for recreationists that meets A3 curriculum guidelines. Time Commitment: approximately 8 hours of instruction, at least 60% in the field. Grading: Pass/Incomplete/Fail based on written exam and evaluation of field skills.
Level 1 Avalanche Module 5 Organized Avalanche Rescue Refresher	Level 1 Avalanche Module 5 (L1AM5) is a half-day refresher designed to upgrade and refresh Module 3 organized avalanche rescue skills. Prerequisite: prior completion of Level 1 Avalanche Module 3. Time commitment: approximately 4 hours of instruction, at least 60% in the field. Grading: Pass/Incomplete/Fail based on written exam and evaluation of field skills.

Course	Summary Description
Level 2 Avalanche for Rescue Personnel	This is an advanced course, different from recreational Level 2, especially designed for organized avalanche rescue personnel. Subject matter develops advanced avalanche hazard evaluation skills for a given time and place, and basic hazard forecasting skills projected over a longer time span and larger territory. It introduces risk management strategies, leadership principles for safe travel to an avalanche incident site, conducting immediate search and extended operations; incident alerting and rescue planning, incident and rescue documentation and reporting. It is a prerequisite for entry into NSP avalanche instructor development. Scheduling is flexible, to accommodate instructor and student availability, but may not extend from one season to the next. Pre-course study and homework between sessions is usually required. Prerequisites: NSP Level 1 Avalanche Module 3 or 5 within the previous three years; at least one intervening season of additional experience in the field; FEMA IS-100.B, IS-200.B and IS-700.A course certification. Time commitment: approximately 40 hours Grading: Pass/Incomplete/Fail based on final written exam, simulated rescue report and field skills.

Level 1 course modules may be taught separately, sequentially or concurrently, at the same venue or separate venues. This optimizes flexibility in course delivery to accommodate both student and instructor time constraints and facility availability.

The Level 2 Avalanche for Rescue Personnel course format optimizes flexible and dynamic teaching/learning interactions that accommodate the advanced and varied nature of student backgrounds and responsibilities, as well as the particular environmental circumstances under which they function.

Using This Manual

This document is structured for printing and storing in a tabbed loose-leaf binder. Section 7 resources files should be selectively printed and used as needed. This layout also facilitates updating portions of the manual as needed, without affecting other sections. Each section is designed to provide a specific aspect of instructor support as follows:

Section 1 – Program Overview

Section 2 – Avalanche Awareness Course

Section 3 – Avalanche Senior Elective

Section 4 – Avalanche Companion Rescue

Section 5 – Level 1 Avalanche Modules

Section 6 – Level 2 Avalanche for Rescue Personnel Course

Section 7 – Instructor Resources

This manual is a living document, designed to adapt to a dynamic educational field. Please contact your division's avalanche program supervisor to suggest improvements.

PROGRAM QUALITY MANAGEMENT

Program Standards

The NSP Quality Management System (QMS) specifies an NSP educational program quality standard consisting of eleven elements. All avalanche program standards and guidelines are consistent with NSP QMS and applicable portions of the NSP policies and Procedures Manual. All avalanche instructors should annually review the NSP Policy and Procedures Manual.

Standards are indicators of quality, based on recognized best practices. *Guidelines* indicate recommended methods or approaches to achieve specified quality objectives. *Consistency* implies a reliable, system-wide approach to the education process and outcomes.

To develop a perspective of program standards, guidelines and policies described in this manual, pay attention to key adverbs, such as "must" (policy/rule), "should" or "recommend" (guideline for consistency), or "may" (flexibility/choice of options).

Program Structure

Venues

Classroom portions should be conducted indoors, with suitable lighting, seating, writing surfaces, ventilation, temperature control, access to multimedia equipment, proximity to restrooms, etc.

Field activities must be conducted in terrain that is representative of avalanche terrain. Students need to be able to observe and investigate actual slide paths, terrain traps, effects of wind and other weather events, multi-layer natural snowpack, complex slopes, etc. This should include 30-45^{o} slopes, critical aspects, examples of features that develop cross loading, etc. Controlled slide paths at ski resorts are excellent for this purpose. However, any slopes that the class is exposed to must be evaluated as reasonably stable at the time. During unstable conditions, low angle, low-consequence terrain must be used. Review Risk Management Guidelines, covered later in this section, before conducting this course.

Class Size

Enrollments of 8-12 students are considered optimum; they should not exceed 20. As a matter of principle, the higher the level of learning, the smaller the class size needed for optimum learning.

Avalanche Awareness (AA) is an exception; it may be presented by a single instructor to large audiences that may include hundreds.

Instructor/Student Ratio

There is no recommended ratio for content delivery in classroom presentations. Preferred student/instructor ratio for small-group classroom activities and all field activities is 5:1 and must not exceed 6:1.

Audit Frequency

All courses must be audited by an IT. Both the overall course and individual instructor performance are evaluated during these audits. Specific guidelines for auditing by IT are contained later in this section.

Course Content

This manual contains a guide for each course that provides information for course and lesson planning. Each course guide is arranged in the following format.

Course Standards

- **Target Audience**
- **Intended Outcomes**
- **Student Prerequisites and Pre-Course Study**
- **Time Commitment and Scheduling**
- **Instructional Resources**

Lesson Guides for Classroom Topics

- **Overview—**overall purpose and suggested instructional approach
- **Concluding Objectives**—student knowledge to be attained
- **Key Terms**—terms necessary for comprehending and communicating lesson content and developing overall avalanche literacy. Students may already be familiar with many of the words listed below, but not necessarily in the context of avalanche jargon. Other terms may be totally new. Be prepared to clarify as necessary when they first come up in your lessons.
- **Sample Set**—brief statement to stimulate interest and engagement with the topic
- **Content**—subject matter necessary to achieve desired learning objectives
- **Suggested Demonstrations/Student-Centered Activities**—demonstrations and student-centered activities for facilitating, reinforcing, and developing higher cognitive levels of learning
- **Suggested Questions for Student Summary/Evaluation of Learning**—sample questions that prompt students to recall essential concepts; useful for guiding the student summary and evaluating their learning

Lesson Guides for Field Activities

- **Overview—**Overall purpose, intended outcome and suggested instructional approach
- **Concluding Objectives**—essential skills for students to demonstrate
- **Suggested Activities—**activities that facilitate skill development objectives
- **Skill Evaluation—**guidelines for evaluating attainment of objectives

Resources Required

Instructors

Any NSP certified Level 1 Avalanche instructor who is a Professional Member of the American Avalanche Association may serve as Instructor of Record (IOR) for all but the Level 2 Avalanche for Rescue Personnel course. An NSP certified Level 2 instructor who is a Professional Member of the American Avalanche Association may serve as IOR for any course. Although Level 2 instructors are preferred as assistant instructors at Level 2 courses, experienced, competent Level 1 instructors may teach with mentors in order to qualify for Level 2 instructorship. Non-certified individuals may teach as guest instructors at any NSP avalanche course, under the supervision of the IOR.

The total number of instructors for each course varies, depending on class level and size, whether small group classroom activities or field sessions are involved. Assignment of additional instructors is managed by the IOR.

Helpers

Non-instructor helpers may assist with setting up field problems and playing roles in field scenarios. Each IOR determines utilization of helpers.

Equipment

The type and amount of equipment varies with different courses and lessons. Course guides specify appropriate equipment.

Educational Materials

Course and lesson guides suggest appropriate educational materials. Section 7 of this Manual contains an assortment of approved resource materials that instructors may use.

Course Prerequisites

Prerequisites are specified in the summary course description in Section 1 and in each course guide. They are to help ensure adequate preparation for the type and level of learning involved and thus optimize student success. The IOR may waive or modify course prerequisites for enrollees on a case-by-case basis.

Evaluation Format

Student academic learning is informally assessed during each lesson. Accumulated academic knowledge is measured by an IOR-constructed final exam, using a program-developed bank of test items. Skill development is evaluated using a program-developed skill performance observation/rating form.

Grade Scale

With the exception of Avalanche Awareness, course participants are graded on a Pass/Incomplete/Fail basis using the following criteria:

- Final grade of Pass
  - At least 80% on the written final exam and a score of "Pass" on all field skills
- Final grade of Incomplete
  - Final exam score less than 80% but no less than 70%, or missed exam; passed all skills
  - Passed written exam but less than passing score in no more than one skill
  - Test or skill evaluations can be made up before the end of the season
- Final grade of Fail
  - Final exam score less than 70%
  - Less than passing scores on two or more skills regardless of written exam score

Students who fail the course must repeat the entire course for certification.

The Avalanche Awareness presentation is not a conventional course and participants are not held accountable for their learning. For live courses presented by instructors, a short question-answer session may be conducted only for informal assessment of learning; students are not graded per se.

Reporting Requirements

Course registration

All courses, with the exception of Avalanche Awareness presentations, must be registered with the NSP Education Department as soon as possible and always before commencement of the first-class meeting. If courses are open to non-members the IOR must contact the NSP Education Department and request that the course be placed on the non-member course schedule.

Course Completion Record

Every registered course must be either closed or cancelled by the IOR via the NSP website in accordance with current NSP procedures.

In the case of the NSP Avalanche Awareness, reporting will be in accordance with division policies. It is recommended that individual divisions keep a record of how many presentations are given and approximately how many people attended

Division Instructor Activity Report

Any division Instructor Activity Reports will be completed and saved as per division policy.

Course Quality Feedback Reports

Daily Student Feedback

IOR may use an optional Daily Feedback report to measure the learning climate of the class. This short, four-question survey allows students to identify the most and least useful topics and presentation formats, which the IOR and assisting instructors may use to calibrate subsequent lessons.

IT Audit Reports

An avalanche program IT should attend at least enough of every course to evaluate overall course quality and lesson quality of individual instructors, using program-developed quality auditing forms. These program-developed evaluation forms are located in Section 7 of this manual.

The IT uses the above audits to discuss overall course quality with the IOR and assisting

instructors together, and to discuss individual lesson evaluations with each instructor (privately). The IT then sends copies of all evaluations and a summary of feedback survey results to the division avalanche program supervisor (and region avalanche program administrator if required by division program policy). The supervisor uses these audits to help manage program quality at the division level.

If audit of a course by an avalanche program IT is not feasible, an IT from another program may be assigned to evaluate overall teaching and course management quality, but not content.

If no IT is available, the course CCR must be annotated with justification for the missing IT signature and sent to the division avalanche program supervisor for endorsement.

NSP Feedback Survey

The IT also administers the NSP Course Feedback Survey, if present on the final day of the course. If the IT is not present on the final day of the course, the IOR administers the survey. A Survey Summary Report (see Section 7) must be forwarded to the division avalanche program supervisor (and region avalanche program administrator if required by division program policy).

Division Program Status Reports

Division Program Status Reports may be requested from time to time by the national program director for the development of a national report. Other status reports may be required by individual division leadership.

Risk Management

Acknowledgment of Risk

Participation in avalanche courses involves inherent risks. Safety measures reduce risk but cannot eliminate it. All avalanche course participants must be properly informed of the inherent danger associated with avalanche education.

Liability Releases

Though not formally discussed in NSP P&P, the NSP National Legal Committee has determined that liability releases work to protect both the instructor and the NSP and that they should be an integral part of every program and course. The NSP provides a generic liability release document. Unless superseded by division policy, program policy requires signature of this release by all participants in avalanche education events with the exception of Avalanche Awareness. Divisions, resort operators or other land managers may require their own versions of liability releases. The release form may be found in Section 8, Course Management Resources, of this manual and elsewhere on the NSP website.

For adults, the liability releases should be retained for at least five years; for minors, five years or two years after reaching age 18, whichever is later. There is no set policy on who retains the releases, Host area management is recommended; if that is not feasible, the IOR should retain the releases.

Student Preparedness

All participants must be properly clothed, equipped and physically fit for the expected field conditions, including severe weather. The instructor of record must evaluate the preparedness of the students and allow only those who meet the criteria to participate.

Field Training Site Selection and Approval

Whenever possible, field venues should be located in terrain settings that most participants would reasonably expect to travel (e.g. in-area and nearby out-of-bounds terrain for area patrollers, backcountry terrain for Nordic and backcountry patrollers, SAR group personnel or recreationists).

Use of the terrain must be approved by the property owner or manager before the course. Managers may set terms and conditions for approval, such as exemption from liability and proof of NSP liability insurance. The NSP Liability release provides this exemption and proof of NSP liability insurance for its educational events may be obtained from the National Office.

Travel in avalanche terrain requires recognizing and avoiding exposure to avalanche hazard. Field training is for the purpose of recognizing and observing such things as slide paths, terrain traps, factors that contribute to snowpack instability, and for practicing hazard evaluation, safe route selection and travel habits. Likewise, rescue exercises should also be taught and practiced on slopes representative of avalanche runout zones. Actual training routes and sites must always occur on terrain evaluated as "safe," both from a historical perspective and by recent testing. Whenever possible, training sites and routes should have cell phones or other telecommunications reception for emergency calls.

Chosen training sites that are not in or adjoining, lift-served ski areas should be close to vehicle transportation in order to conserve time and to be able to make a prompt evacuation in the event of a problem.

Equipment

Students and instructors must carry a suitable avalanche transceiver, probe and shovel whenever participating in any activity held in avalanche terrain. Instructors must carry emergency communications (radio or cell phone) in order to summon help if an emergency occurs.

Supervision

Students should be under the observation and supervision of a qualified instructor while engaged in field activities. While in the field, instructors must evaluate avalanche hazard and use routes and practice sites that provide a reasonable margin of safety.

Student opt-out

Any student who does not want to participate in any portion of the training must not be pressured in any way to do so. If a student feels unsafe in any situation in which he or she has been placed, the instructor must either make adjustments to the situation or have that person escorted back to a place of safety. Students who choose to opt-out must not be left alone in the field.

Use of Explosives

NSP provides basic familiarization with avalanche mitigation methods, including use of explosives in its Level 2 Avalanche for Rescue Personnel Course. Familiarization may include live demonstrations conducted by area personnel, following local safety protocols. Students may not handle live explosives, but handling inert training mock-ups of explosive devices is permitted.

Avalanche mitigation activities are the responsibility of area management and regulating agencies. NSP members may participate in explosives/artillery avalanche control training and operations under the auspices and the control of those entities. Such training and control operations are not considered part of NSP education and therefore are not covered under NSP insurance.

Burial of Individuals for Training

Burial of individuals is permitted in a properly constructed snow cave to facilitate the training of avalanche rescue dogs or to demonstrate the use of dogs in avalanche rescue. Burial for no other purpose is allowed. Burial must be conducted according to the guidelines listed here.

The minimum manpower and equipment required for each snow cave burial are:

- One volunteer for snow cave burial
- One dog team (dog and handler)
- Two shovelers with shovels
- Two 2-way radios
- Operating avalanche transceivers, worn by everyone at the site
- Markers for triangulation of the burial site
- Insulating material for volunteer to lie on

More manpower and equipment will be required if a multi-dog/multi-victim drill is being conducted. Safety is the top priority and must not be compromised due to insufficient resources.

Snow Cave Construction

There should be no avalanche danger on the slope being used or on adjacent slopes. The slope should be in a remote area and closed to the skiing public by flagging, roping, signs, and/or the posting of guards, as necessary.

One person should dig the snow cave while another person stands by for emergency extrication, if required.

The cave must be constructed in compacted snow. It is preferable to use snow that has been compacted the day before or old avalanche debris. The cave should be constructed with a convex roof for strength. It must have adequate space for the buried volunteer to make moderate movements and have adequate air space. Building the cave with the floor slightly higher than the entryway helps lessen the chance of loose snow falling in on the subject as the dog and shoveler gain entrance.

The volunteer to be buried should avoid shoveling, since a well-rested person is less likely to suffer claustrophobia. Before the volunteer enters the cave, it should be safety-tested. The cave must be able to bear the weight of a person walking across and standing on the roof. If the roof fails the safety test, a new cave must be dug, and safety tested. If the roof of the second cave fails, the session must be aborted until the snow becomes stronger.

The cave may be constructed as a full-body cave where the volunteer is free to move about or as a half cave where the cover snow is in contact with the volunteer's legs but never above the waist.

The cave's location must be marked with wands or poles to enable exact location using standard triangulation techniques.

Burial of Volunteer

The volunteer must be warmly dressed and should lie on his or her side or stomach on an insulating material such as a foam pad. The snow cave entry should be closed with snow blocks in igloo fashion and then covered with shoveled snow.

The volunteer must have a two-way radio and a rescue transceiver while in the cave. The radio and transceiver must be turned on and tested before entry. The volunteer must keep the radio in an accessible location and the avalanche transceiver worn as normal. The volunteer must

maintain frequent radio contact with the shovel crew until notified of the approach of the rescue dog.

Shovelers

A shoveler must remain close enough to the cave to be able to reach it within 10 seconds.

The shoveler must have a pre-tested radio and rescue transceiver turned on. The shoveler must maintain frequent and regular radio contact with the volunteer until the approach of the rescue dog.

If at any time the shoveler receives a request from the buried volunteer to be extricated or fails to get a radio response from the buried volunteer, he/she must immediately dig that person out.

When the dog locates the cave, the shoveler must immediately and carefully extricate the volunteer following any dog handler instructions. Multi-victim drills may necessitate a victim remaining partially buried. If so, a shoveler should stand by to assist if needed.

Burial Times

The time allowed for scent rise should not exceed 15 minutes before the dog is brought in. In some cases when working a puppy, probe holes may be made through the fill snow to help the scent rise. The total time for the exercise from the time the cave is closed until extrication begins should not exceed 60 minutes for full body caves and 30 minutes for upper torso caves. If the dog has not located the cave within this time frame, the session must be terminated, or another dog used to find the buried subject.

Closure

At the end of the training exercise, the snow cave should be collapsed, filled in and returned to a skiable condition. Some areas may reuse caves and as such they should be adequately marked so as not to pose a hazard.

Operational Risk Management Checklist

The following risk-management checklist provides guidance for NSP Instructors who lead avalanche courses that involve field work.

1. **Pre-season preparation.** Prepare for the teaching season during the months before avalanche courses start.
   - ☐ Refresh instructors' avalanche rescue skills.
   - ☐ Review permits required by land-use agencies.
   - ☐ Track the weather and snowpack in areas to be visited during field sessions.
   - ☐ Identify field-session terrain to be used during the coming season and classify areas using the Avalanche Terrain Exposure Scale: 0 (non-avalanche), 1 (simple), 2 (challenging), 3 (complex), 4 (extreme).
   - ☐ Check all equipment to be used in courses, such as transceivers, shovels, probes, airbags, communication equipment, navigation devices, and first-aid kits.
   - ☐ Identify potential field-session helpers who have the skills to assist with emergencies but who are not essential to the instructional workforce.

- Develop or review the plan for managing emergencies during field sessions, including leadership roles (who reports to whom), communication plan (what devices and channels), evacuation plans, and transport plans in case a participant gets injured.

2. **Student orientation.** During classroom sessions, before the first field session, discuss with students the expectations for field sessions.
   - Make sure all field-session participants fill out, sign, and submit liability waiver forms.
   - Provide topographic maps of the areas to be visited and information on how students will access trailheads, including any fees or permits required.
   - Provide students with information on how to find avalanche forecasts for the areas to be visited.
   - Inform students of the emergency communication plan and the emergency management capabilities of the group.
   - Make sure students know what travel modes, skill levels, and physical fitness levels will be required in the field. Consider using less strenuous terrain for the first field session, to gauge students' abilities before using more strenuous terrain.
   - Make explicit the expectations for group dynamics: stay with the group, adhere to instructors' directions, let instructors know if difficulties such as cold stress, hot spots or blisters, equipment failures, or other challenges arise.
   - Inform a non-participant of the group's travel plans, including area(s) to be visited, expected return time, and emergency communication plans.

3. **Pre-trip meeting.** Shortly before each field session, hold an instructors' meeting ("morning meeting"), led by the Instructor of Record and involving all field-session Instructors. These steps appear below in a morning meeting checklist for ease of use.
   - Using published avalanche and weather forecasts or the Conceptual Model of Avalanche Hazard, identify the avalanche problems for the day, their locations, the likelihood of avalanches and their destructive size, and the avalanche hazard rating in the area(s) to be visited.
   - Identify the instructors' mindset: (a) stepping back from previous assessments, (b) status quo based on forecasts, (c) limited exploration based on improved conditions, (d) stepping out into previously closed terrain based on improved forecasts, and (e) open season, based on low avalanche danger ratings.
   - Review other hazards, such as current and anticipated weather and road conditions.
   - Develop a travel plan to manage the hazards and their locations using such techniques as (a) terrain closures, (b) open run lists, (c) terrain selection, and (d) travel practices.
   - Review the communication plan: What devices (e.g., radios) will instructors use for group management? What devices (e.g., radio channels, cell phones, satellite messengers) will instructors use to summon outside assistance in an emergency?
   - If appropriate, notify area management or dispatch before leaving in-bounds terrain.
   - Develop a plan to manage anticipated human factors such as (a) discrepancies in fitness or skill levels, (b) group size, (c) group dynamics, and (d) individual problems such as equipment failures, unexpected disabilities, injuries, or illnesses.

4. Travel practices.

4.1 Start of the field day:

- Establish a sign-in sheet to document who is participating and what group gear they are carrying.
- Conduct an equipment check for all participants, including checks of transceiver battery levels and transmission and search modes.
- Review the avalanche forecast, weather forecast, and travel plans with all participants before departing from the trailhead.

4.2 While traveling:

- Use assigned leaders, sweepers, and communication methods to keep the group(s) together.
- Monitor and discuss with all instructors and students the observed avalanche hazards, including likelihood of triggering, possible consequences, and consistency with the avalanche forecast.
- Select terrain and travel practices to minimize exposure to avalanche hazards. Discuss these choices with all participants.
- Use periodic rest stops to monitor participants' wellbeing and to discuss and reassess the travel plan in light of observed conditions.
- Consider implementing a buddy system and multiple sweepers for all downhill travel, where participants are more likely to spread out on the terrain.
- If appropriate, notify area management or dispatch when returning to in-bounds terrain.

4.3 End of the field day (these steps appear in an end-of-session checklist for ease of use):

- Collect and inventory all group gear.
- Review the sign-in sheet to ensure the safe return of all participants to the trailhead.
- Wait until all participants are accounted for before dismissing the group, to maximize resources for any required search.
- Make sure all participants' vehicles are working before leaving the trailhead.

5 **Evening meeting**. Gather instructors for a debriefing. These steps below in an end-of-session checklist for ease of use.

- Review the conditions encountered during the field session, compared with the forecast, and implications for the next field session, if applicable.
- Review travel-practice and terrain-selection decisions. Where was the group at greatest risk? Did instructors manage the risk deliberately and effectively?
- Identify any equipment problems to be resolved before the next field session, including transceiver battery levels.
- Identify improvements in teaching practices and safety practices for future field sessions.
- Identify findings and lessons to be discussed in subsequent classroom sessions.

MORNING MEETING CHECKLIST

- ☐ Using published avalanche forecasts or the conceptual model of avalanche hazard, identify the avalanche problems for the day, their locations, the likelihood of avalanches and their destructive size, and the avalanche hazard rating in the area(s) to be visited.
- ☐ Identify the instructors' mindset: (a) stepping back from previous assessments, (b) status quo based on forecasts, (c) limited exploration based on improved conditions, (d) stepping out into previously closed terrain based on improved forecasts, and (e) open season, based on low avalanche danger ratings.
- ☐ Review other hazards, such as current and anticipated weather and road conditions.
- ☐ Develop a travel plan to manage the hazards and their locations using such techniques as (a) terrain closures, (b) open run lists, (c) terrain selection, and (d) travel practices.
- ☐ Review the communication plan: What devices (e.g., radios) will instructors use for group management? What devices (e.g., radio channels, cell phones, satellite messengers) will instructors use to summon outside assistance in an emergency?
- ☐ If appropriate, notify area management or dispatch before leaving in-bounds terrain.
- ☐ Develop a plan to manage anticipated human factors such as (a) discrepancies in fitness or skill levels, (b) group size, (c) group dynamics, and (d) individual problems such as equipment failures, unexpected disabilities, injuries, or illnesses.

END-OF-SESSION CHECKLIST

Trailhead protocols:

- Collect and inventory all group gear.
- Review the sign-in sheet to ensure the safe return of all participants to the trailhead.
- Wait until all participants are accounted for before dismissing the group, to maximize resources for any required search.
- Make sure all participants' vehicles are working before leaving the trailhead.

Evening meeting:

- Review the conditions encountered during the field session, compared with the forecast, and implications for the next field session, if applicable.
- Review travel-practice and terrain-selection decisions. Where was the group at greatest risk? Did instructors manage the risk deliberately and effectively?
- Identify any equipment problems to be resolved before the next field session, including transceiver battery levels.
- Identify improvements in teaching practices and safety practices for future field sessions.
- Identify findings and lessons to be discussed in subsequent classroom sessions.

Conflict Resolution

In general, conflicts should be resolved at the lowest possible level in the NSP management hierarchy. Conflicts are resolved on a case-by case basis, depending on the nature and level of the conflict, using guidelines contained in the NSP P&P, Division and Region Bylaws.

If a conflict cannot be resolved at the lowest level of the program, the conflict resolution process moves to the next level. For example, if a student disputes a failing course grade, conflict resolution should begin with a discussion between the student and IOR. If unsuccessful, the attending IT may need to become involved in the resolution process, followed by the region administrator, division supervisor, and finally the national director.

Program leadership must avoid conflict-of- interest issues while adjudicating conflicts arising from courses. For this reason, anyone in positions of program oversight should avoid teaching at courses. If this is unavoidable, and a conflict arises, resolution must begin at the level above that of the official involved.

Course and Instructional Quality Guidelines

Time Management

Course schedule

The time it takes to complete any course varies due to many factors, including student preparation, prior academic background and experience, and individual pace of learning. Instructor efficiency, content complexity and venue layout are also factors. It is ultimately up to the IOR to develop a course schedule that allows students to reasonably attain learning objectives, yet not waste time.

Each course guide specifies suggested instruction times for lessons and other activities, but this is only a starting point for planning purposes. The total time commitment for completing a course may be longer than the suggested instruction time.

Lesson plans derived from the lesson guides need to be rehearsed to develop a sense of realistic instructional time for each lesson, which is then factored into a master course schedule. As much as practical, quality lessons should drive the schedule, not vice versa.

The course schedule should also take into account breaks, set-up time for instructor changeover, etc. Once the schedule is established, it should be closely followed and not needlessly run overtime.

Duration vs. Endurance

Instruction can easily exceed attention span or the pace of learning. Lessons need to be diversified with demonstrations or activities to refresh attention span, reinforce comprehension and/or apply concepts. The pace should be brisk, yet not rushed.

It is important to schedule short breaks during long lessons and between changes of topic. Frequent short breaks are generally better than a few long ones because they allow the student to refresh without becoming overly distracted by other personal business. For instance:

- Break up lecture into no more than 15-minute blocks with student–centered activities interspersed
- Three- to five-minute breaks between topics
- Ten-minute mid-morning/mid-afternoon breaks
- 45-minute lunch break

Running a lesson significantly beyond allotted time frustrates everybody, which is detrimental to the teaching/learning climate of the lesson, and if chronic, the entire course. It frustrates fellow instructors as well as students. Running overtime is often the result of inefficiency or going beyond the intended scope of the lesson rather than genuine necessity. Instructors should dry-run their lessons to ensure that this does not happen. If more time is truly needed, the instructor needs to negotiate a schedule adjustment with the IOR during the planning phase of the course.

A student's day should have no more than about seven hours of instruction and not last longer than about nine total hours, including breaks. Learning efficiency and retention drops significantly if those limits are exceeded.

Homework, if due the next day, should take no more than 45 minutes to complete. Homework due within a week or so should not take more than two hours total.

Do not forget about the instructor's day, either. Take into account the extra setup time before class and debrief time at the end of the day. Teaching should be invigorating and rewarding, not an exhausting ordeal.

Content and Skill Sources

Avalanche education is science-based and in continuous development. New ideas, techniques, technologies and standards may enhance or replace conventional wisdom. On the other hand, not all new research withstands the test of rigorous peer review and long-term application. New developments are incorporated into NSP avalanche content only after their validity and reliability is established within the overall avalanche community. Primary sources of new content include but are not limited to: International Snow Science Workshops (ISSW), International Commission on Alpine Rescue (ICAR), and the American Avalanche Association publication, *The Avalanche Review* (TAR).

Because avalanche knowledge is constantly evolving, lesson guides in this manual describe the nature of the content to be provided, not necessarily the specific facts to be stated. Every instructor is responsible for keeping up with current scientific and technical research.

NSP does not publish a comprehensive text to support its avalanche curricula, but rather relies on existing trade publications for text material. One exception is the NSP textbook, *Avalanche Rescue Fundamentals,* which is used as a content resource for NSP avalanche rescue curricula.

The NSP National Avalanche Committee periodically reviews avalanche-related literature and issues lists of approved resource material. See Section 7 of this Manual.

If specific area practices are included in a course, they need to be identified as such and be added as supplemental to, not in lieu of, NSP avalanche curriculum components.

Instructional Quality

Lesson Planning

The NSP six-pack lesson is the standard of quality for NSP Avalanche instruction. It is based on over a century of educational research and recognized best practices of effective educators. The six-pack format helps ensure that essential elements of instruction are addressed.

The IOR should require assisting instructors to provide copies of six-pack lesson plans for their teaching assignments. The IOR uses these lesson plans to ensure continuity between lessons, minimum content overlap, accuracy and consistency of information, and appropriate timing. The presence of written lesson plans is part of the course quality evaluation.

Instructors should avoid a tendency to let *content delivery* dominate their lesson at the expense of other essential components. Consider the following allocation for each component.

- No more than 5% for Set and Objectives
- No more than 45% for Content Delivery
- At least 40% for Student-Centered Activities
- At least 10% for Student Summary/Assessment of Learning

Lesson Coordination and Flow

Lesson coordination helps reduce redundancy and mixed messages. Lesson delivery should be rehearsed to ensure that the lessons flow well, promote interactivity between the instructor and learners, and are appropriately timed.

Lecture with Caution

Lectures are the most common form of classroom instruction. However, too many otherwise great instructors get caught up in what may be referred to as a "slide-deck fixation"—presentations with slide after slide packed with information. They may be brilliantly composed, but instructor attention is too often focused on the slides, not the students. Such lectures become monologues that put students into a state of cognitive overload, if not stupor.

To be most effective, lectures must be carefully calibrated to student preparation and be constructed to include interactive portions that engage students in higher order cognition.

Encourage Student-Centered Engagement

Questions that require a student to think and respond are interactive. So are peer-centered activities involving analysis of situations, applications of principles, problem-solving, etc. The more instructors can engage students in these types of activities the higher the quality of the learning and the greater the likelihood that the information will be retained and used.

It takes more effort and skill to get students to open up and take an active role in the learning process. One way is to begin each lesson with questions addressed to specific students on a rotation basis. When questions are deliberately rotated, the discussion cannot be dominated by a small number of students and all students are indirectly put on notice that they will be held accountable for their participation. Better yet, start with a scenario or case study that engages students with applying what they are expected to already know, and use the results to guide appropriate supplementation.

Start with Assessment

A common misconception is that each element of the six-pack lesson must be presented sequentially, in the order listed in the Instructor Development Manual. This is not necessarily the case. Many of these elements may be mixed throughout the lesson, especially Evaluation of Learning. Students come to our courses with their own sets of notions, background knowledge, motivations, perspectives and learning styles. Expert instructors often begin lessons with a brief, informal assessment that brings out what students already know, think they know, or find a complete mystery. This allows the instructor to adjust the lesson to make it more relevant. They intersperse assessment of learning throughout the lesson to keep it on track.

Retention and Understanding

Large amounts of information presented over a short time usually goes only as far as short-term memory, which has a limited capacity. Once capacity is reached, short term memory dumps older information to make room for newer information.

To be effectively retained, the information must go through the process of transfer to long-term memory. Cognitive processing, determining value and attachment of the new information to something already in long-term memory help this process. That is why assessment of prior learning, engaging students with practical applications of the content via student-centered activities and having students summarize their learning is so important. Working in peer groups also adds a social aspect that facilitates this process.

Remembering is the lowest level of cognition according to Bloom & others. To be effective, especially in terms of decision making, the knowledge must be applied, synthesized with other information and evaluated.

Scientific and Technical Literacy

Level 2 students are exposed to higher levels of scientific and technical aspects of avalanche phenomena in order to be able to continue their learning independently, some of which comes through technical literature. At this level, students should be able to work with the International System of Units (SI) measurement system and create some derived data, such as temperature gradients, snowfall and precipitation intensities, snow density, SWE, etc. Use SI units as much as possible. Students should have ready access to conversion tables (in SWAG) and objects that match common SI units (e.g. a dime is 1 mm thick, the nail of the little finger is about 1 cm wide; a liter of water has a mass of 1 kg, etc.).

However, scientific/technical principles, especially mathematically derived data, must be limited to those having an immediate, practical application for hazard assessment or rescue that the student can recognize as useful and necessary. Principles associated with energy, forces, and molecular activity can quickly go beyond the comprehension of many students, render such content meaningless to them and actually degrade the learning climate. Instructors must be alert to vacant stares, be prepared to evaluate learning and to clarify the content before moving on.

If discussion begins to go to a highly technical level because of questions asked by one or two technically oriented students, other students may be excluded from participation and the learning climate is again compromised. In this event, the technical questions may be better addressed after, rather than during, the lesson.

Evaluation of Learning

Informal Assessment

Student learning should be informally evaluated frequently during the course so early interventions can correct misunderstandings and improve overall success with the final exam. This is accomplished by observing student engagement in activities, student summaries, and by written and oral quizzes.

Final Exam

With the exception of the Avalanche Awareness presentation, a written final exam is mandatory for avalanche course participants. It typically consists of a written closed - or open-book final exam given at the end of the course. Closed-book exams are preferred because they truly assess retained knowledge, the only thing students may take into the field with them after the

course. Open-book exams do this to a lesser extent but are still acceptable because they help the students realize their deficiencies and give them an opportunity to "get it right" before they leave.

The NSP Avalanche Test Bank (See Section 7) provides a variety of test items. Exam items should focus on essential concepts and applications of knowledge rather than fine details. They should involve a mix of cognitive levels. The exam should not take more than an hour to complete.

Administering a final exam at the end of a long day is not appropriate, especially if students are exhausted (perhaps wet and cold, too) or they do not have a suitable place to sit and write. If students are to be given the written final on the same day as field activities in inclement weather, consider administering the written test first, then conducting the field activity; otherwise, schedule a substantial break between the final course session and the test to allow students to refresh, relax and review their notes before taking the exam.

If, for some reason, suitable test taking- facilities are not available, a possible alternative is a "homework" test, given to each student at the beginning of the course, to be turned in before the student leaves at the end of the course. This gives the student some flexibility in completing items and for getting help from instructors and/or peers when needed. However, this testing mode should be considered as a last resort because it may not be a reliable measure of the student's retained knowledge.

Avoid giving take-home tests that are to be submitted after the course. Too often, otherwise qualified students receive final grades of Incomplete or Fail because take-home tests are not returned in time, if at all. **Instructors may not delay timely submission of course completion records because take-home tests have not been returned.**

Performance in the Field

Field work is the heart of serious avalanche education. Academic knowledge has little usefulness if it cannot be applied to real-world conditions. Field activities should always be conducted where they are both meaningful and within risk management guidelines specified earlier in this section.

Student performance in the field should be scored by instructors, using the scoring form provided in Section 7. At the end of each day, instructors may submit these evaluation forms to the IOR to assist in overall evaluation of field performance. The IOR should confer with assisting instructors concerning any student with identified weaknesses and develop interventions that encourage success.

Although timing of students in transceiver searches is used in some certification tests, it is not recommended for NSP Level 1 avalanche courses. All transceiver training should emphasize proper technique, which can be refined and become more efficient with additional practice.

Program Management

Management Structure

NSP education programs are administered through a formal management structure with designated titles and functions. This structure consists of the national program *director*, the division avalanche program *supervisors*, region avalanche program *administrators* and patrol *advisors.* The roles of *instructor trainer, mentor, instructor of record* and *instructor* have

administrative functions but are not considered managerial. The general qualifications, appointment process and responsibilities of each of these positions are described in the *NSP Policies and Procedures*. Avalanche Program-specific responsibilities are summarized below.

National Avalanche Program Director

Program Representation

- The program director's responsibilities are spelled out in the NSP Policies and Procedures.
- Serves as ex officio member the National Avalanche Foundation's board of directors.
- Represents the NSP Avalanche Program in communications with national and international organizations.

National Avalanche Committee

Members

- As per current NSP Policies and Procedures
- Provide nominations and recommendations for recipients of the Montgomery M. Atwater Award

Division Avalanche Program Supervisor

Program Promotion and Delivery

- Ensures sufficient and appropriate availability of courses and instructors to meet program delivery needs throughout the division
- Coordinates region program administrators in scheduling appropriate courses and providing evaluation oversight
- Promotes the NSP Avalanche Program in cooperation with division officers, region avalanche program administrators, instructor trainers, and instructors
- Identifies and provides solutions to issues and problems that could negatively affect the program or its delivery to the division's membership

Quality Management

- Administers a quality assurance process developed by the NSP National Avalanche Committee and described in the NSP Avalanche Instructor's Manual
- Monitors course registrations and closures to ensure proper and timely administration
- Develops, appoints and supervises mentors and instructor trainers in the division
- Certifies Level 1 Avalanche instructors; recommends Level 2 avalanche instructor certification and recertifies all avalanche instructors in the division following guidelines described later in this section
- Utilizes mentors and instructor trainers to provide instructor continuing education to maintain and improve course delivery and quality
- Determines non-NSP avalanche course eligibility for NSP course equivalency credit on a case-by-case basis, following guidelines described later in this section

Communication and Administration

- Maintains active and regular communications with the national program director, other division supervisors and line officers, instructor trainers, instructors and others
- Actively participates on the NSP National Avalanche Committee
- Gathers member input on programs to evaluate how well the existing program is meeting member needs

- Creates mutual understanding of program objectives and performance standards at division, region, section and patrol levels
- Provides the division director and the national program director, with a program status report as requested
- Works with the division director, region directors and region avalanche administrators to establish an equitable fee structure for courses
- Establishes and distributes training schedules of courses in collaboration with division and region staff to meet the needs of instructors and members
- Performs all record keeping and reporting requirements in a timely fashion
- Exempt from teaching and ICE requirement to retain instructor and IT certification during tenure

Region Avalanche Program Administrator

Program Promotion and Delivery

- Supports the division avalanche quality management program
- Assists the division supervisor, instructor trainers, and instructors in developing, recruiting, mentoring, evaluating, and recertifying avalanche instructors
- Ensures that appropriate types and numbers of avalanche courses are delivered in the region based on need, population, and geography
- Supports avalanche instructor development and continuing education conducted within the region

Communication and Administration

- Develops a communication network with the division avalanche supervisor, region director, patrol representatives, program instructional staff and others to coordinate course delivery and discuss program issues.
- Works with patrol representatives, instructors and IT in the region to develop a master avalanche course schedule for the region; provides input for the division's avalanche program master schedule
- Works with the division avalanche supervisor and region director to establish an equitable course fee structure
- Establishes a distribution method of course and refresher schedules, if applicable
- Facilitates instructor development programs, including instructor continuing education clinics and ensures that an adequate number are available based on need, population, and geography
- Maintains such records as required by the division avalanche supervisor and region director
- Handles other program duties as may be assigned
- Exempt from teaching requirement to retain instructor and IT certification during tenure; must participate in ICE events

Patrol Avalanche Advisor

Program Promotion and Delivery

- Encourages patrol members to enroll in appropriate avalanche courses
- Communicates member interest and need for avalanche education to patrol leadership
- Coordinates annual avalanche refresher training if required by the patrol or area management; arranges for visiting instructors if the patrol lacks its own.
- Promotes and coordinates public outreach in the form of avalanche awareness presentations and advertising higher level courses open to the public

Communication and Administration

- Maintains a communication network between the patrol membership, patrol leadership, section chief and region avalanche program administrator
- Maintains records of patrol members' avalanche education status

Instructor Trainers (IT)

Quality Assurance

- Monitors consistency and quality of courses by:
  - Auditing and formally evaluating the overall quality of courses and the performance of individual instructors as per current NSP Policies and Procedures
  - Providing evaluation feedback and recommendations to the division avalanche program supervisor, event IOR and each evaluated instructor
- Recommends certification/recertification of avalanche instructors
- Establishes mentoring relationships with instructors as assigned
- Assists the division avalanche program supervisor and region administrator in development and delivery of NSP Avalanche program continuing education events
- Helps conduct remedial interventions to assist instructors with identified deficiencies
- Should not teach at courses in order to avoid potential conflict-of-interest issues; exempt from teaching requirement to retain instructor and IT certification during tenure

Administration

- Completes and forwards course and lesson evaluations, and the student feedback survey as per division procedures.
- Completes other administrative duties according to applicable national and division guidelines

Mentors

Instructor Development

- Establishes mentoring relationships with assigned instructor trainees
- Helps instructor trainee gain teaching assignments at registered Level 1 modules
- Facilitates trainee's lesson planning and delivery preparations
- Provides informal assessment of performance and determines instructor trainee's readiness for formal performance evaluation
- Maintains records of meetings and observations
- Arranges for instructor trainer observation and formal performance evaluation of trainees when ready

Instructor of Record

Course Administration

- Coordinates course scheduling in accordance with division, region, and patrol procedures.
- Registers all courses on the NSP website.
- If nonmembers will be attending the course the IOR must send a message to education@nsp.org requesting that the course be listed on the non-member course calendar.
- Recruits and coordinates assisting instructors
- Arranges for delivery of required texts or other materials, or advises students to obtain these materials, with sufficient lead time for student pre-course study

- Ensures all financial transactions associated with a course are handled as per local protocols
- Prepares and distributes a course syllabus for course registrants
- Maintains accurate records of student and instructor participation
- Develops the course final exam.
  - May use test bank questions provided in Section 7
  - Scores tests and field skill evaluations; determines final course grade for each participant.
- May provide NSP Certificates of Achievement to students who successfully complete the course.
- Provides notes of explanation for students who receive grades of incomplete or fail
- Ensures course is closed on NSP website and all other course documents and distributed as per division, region, and local policies within two weeks of course completion. If course is not held, ensures that course is cancelled on NSP website.
- More detailed guidelines described later in this section

Quality Assurance

- Previews assisting instructor lessons to ensure compatibility with course standards and guidelines
- Coordinates lessons to reduce overlap, gaps, or mixed messages and to ensure that all learning objectives are addressed
- Works with mentors to facilitate preparation of their assigned trainees
- Monitors student progress and provides appropriate interventions if a student appears to be struggling with academic content or skills

Instructor

Teaching

- Actively teaches avalanche courses and refreshers following course and instructional quality guidelines described later in this Section
- Maintains cooperative relationship with IOR and assigned instructor trainer
- Accepts IOR responsibilities
- Maintains his/her teaching and continuing education log via the NSP website

Quality Assurance

- Maintains personal competency in all pertinent knowledge and skills
- Actively participates in at least one avalanche program-approved continuing education event within each certification period
- Assists with student competency evaluation
- May be appointed to act as a mentor for an instructor trainee

Program Financing

National Level

National level program responsibilities are financed out of the NSP general fund. The NSP national avalanche program director submits an annual budget request. No funding is received from any other sources. Funding requests are specific and must be justified by projected outcomes considered beneficial to the NSP.

Division/Region Level

Divisions and regions may derive revenue from course fees. Both division program supervisors

and region program administrators should familiarize themselves with respective division and region policies and compare them with the following recommendations. These recommendations are advisory only and should not be construed to supplant existing division, region or local policies. However, in the absence of established policies, they may be used as a starting point for establishing policies that provide consistent, equitable program financing that benefits both the program and the members.

Program Delivery Costs and Fees

The division or region responsible for course delivery should attempt to obtain sufficient up-front funding for the following functions.

- Administrative overhead so the program can be maintained even if courses are not taught during a given season
- Up-front costs of conducting courses, such as texts, facilities and equipment
- Instructor continuing education clinics
- At least partial funding for instructor trainer travel and other expenses associated with their duties
- Subsidies for instructors to attend continuing education (CE) events involving significant travel and/or course fees

Enrollment fees should be calculated to reimburse program costs yet be affordable for members. This makes the program self-sufficient, if not provide modest net revenue for the region.

Different fee rates for members and non-members are permitted by NSP policies. Furthermore, non-member fees should not significantly undercut local, commercial provider fees. If there are no competing avalanche education providers, non-member fees may be adjusted closer to member fees to make NSP courses more affordable and attractive, but still be greater than those charged to members.

Enrollment fees for members of NSP affiliates and local agency SAR organizations should be similar to those charged to NSP members. This helps to promote stronger relationships between NSP and those who work beside us.

All enrollment fees should be collected prior to the first course session. These fees should be payable to, and deposited within, a patrol, region or division account. Likewise, payments for instructor reimbursement of out-of-pocket expenses should be made by the NSP unit receiving the course fees. Agreements should be established for disposition of revenues in excess of costs, such as transfer of excess funds to an instructor development fund that provides scholarships for instructors to attend qualifying continuing education events.

There should be a consistent policy for refunding course enrollment fees.

Instructor Reimbursement

Instructors and the attending IT should be reimbursed for out-of-pocket expenses associated with conducting avalanche courses, using NSP Policy and Procedures guidelines for reimbursement rates and caps. The course IOR must ensure that all instructors who teach at NSP avalanche courses are aware of division or region policies and processes for reimbursement of out-of-pocket expenses.

Course Administration

Cross-Division Courses

Cross-division courses must be conducted according to the procedures spelled out in the latest revision of NSP P&P.

Division/Region Coordination

Prior to registration, the IOR must coordinate their course schedule with the division avalanche program supervisor or region avalanche program administrator, according to division policy and guidelines. This allows the supervisor or administrator to assist with:

- Minimizing schedule conflicts and maintain a master calendar of courses
- Arranging for IT oversight and reporting on course quality
- Ensuring that the course is properly registered
- Ensuring that the course is properly priced
- Ensuring that region/division equipment resources are available
- Facilitating advertising of courses
- Providing technical assistance if needed
- Monitoring the course for proper closure

Registration

All courses must be registered with the NSP national office. Only registered courses are covered by NSP liability insurance. Registering the course as early as possible also gets it posted on the NSP website and visible to people seeking courses. If it is desirable to have non-members register for the course the IOR must send a request to education@nsp.org to have the course made available to nonmembers.

Planning

Avalanche courses are complex affairs. Use the Avalanche Course Management Checklist provided in Section 7 of this manual to help ensure that courses are adequately planned and organized.

Syllabus

The IOR should provide a course syllabus to students. It supplies essential advanced information that allows students to prepare for what they may expect to gain from the course and what is expected of them. It should contain the following information.

- Intended course outcomes
- Approximate total time commitment, including pre-course study and homework if assigned
- Course fees and payment method(s)
- Materials and equipment provided to students
- Required texts or other materials not supplied by the IOR, including costs and sources
- Grading and Pass/Incomplete/Fail criteria
- Clothing and equipment requirements or recommendations
- Meal arrangements
- Directions to each venue, parking and gear storage arrangements, if any
- Lift ticket arrangements if field sessions are conducted at a resort
- Expected student mode and skill in winter mountain travel
- Daily schedule of events
- Pre-course study guide, if assigned

Customizable syllabus templates for each course level are provided in Section 7 of this manual.

Assisting Instructors

The IOR may utilize the assistance of any NSP certified avalanche instructor.

Non-certified guest instructors may have superb technical expertise, but limited instructor development or familiarity with the NSP curriculum. Formal lesson plans or coordination with other instructors may be an unfamiliar process. Providing a guest instructor with extra lesson planning support may help to avoid inadvertent presentation of disorganized, redundant or inconsistent content.

The instructor team should have a coordination session to help reduce content gaps, redundancy, mixed messages or running overtime. If that is not feasible, written lesson plans should be submitted in advance to allow the IOR to discover and correct issues that degrade course quality.

Coordination is especially important when activities involve dividing the class into smaller activity groups. Each group leader needs to know what key points/skills are to be covered.

Risk Management

The course IOR is responsible for ensuring that risk management guidelines described earlier in this section are followed by all instructors.

Equipment

Basic, industry-standard equipment is usually sufficient. The latest, most advanced gadgets may be borrowed for demonstration purposes. Donated older transceivers may be used as target beacons as long as they transmit on 457 kHz and they are not used by people for travel in the field.

Non-NSP Member Enrollment

Not all NSP avalanche courses are open to nonmembers. Prospective enrollees should be screened to ensure they are matched with the best course for their needs and ability. NSP members should have enrollment priority.

Nonmembers who enroll in NSP courses should be offered the opportunity to become NSP Associate Members, especially if there is a significant difference between member and nonmember fees. Annual dues are payable directly to NSP. Associate Member benefits include enrollment in any NSP course at member rates, a subscription to Ski Patrol Magazine and access to the NSP web site, including access to selected items in the NSP product catalog. It is a potential bargain for the individual and recruiting tool for the NSP. The NSP Associate Member Application may be downloaded from the NSP website.

Prerequisites for Enrollment

Prerequisites are guidelines established to help ensure sufficient student background knowledge, equipment, physical skills and experience to successfully complete the course. The course IOR may make exceptions to prerequisites at her/his discretion, based on the enrollee's background knowledge and skills, however acquired.

Instructor Trainer Presence

If possible, arrange for the assigned IT to meet with the instructor team before the course begins and include him/her in the opening introductions. Schedule time for an instructors debrief at the end of each day. The purpose of observation/evaluation is to reinforce good teaching and to improve program quality. It is not a one-way street—it is also an opportunity

for instructors to make suggestions for improving program and instructor support.

Tracking Student Progress

Track student progress continuously throughout the course. Sample student progress logs for tracking completion of classroom and field components are located in Section 7 of this Manual. If a student appears to be struggling with course content or skill development, intervene as early as possible, determine the source of the problem and provide appropriate remediation or disenrollment options.

Final Grades

If a student receiving a grade of incomplete makes up missed lessons, is tested or retested and passes the course after the course is closed, a new course may be registered to give the student credit. If not made up by the end of the season, the grade remains *Fail*.

Student Feedback Survey

Students must be given an opportunity to evaluate the course using the NSP Course Feedback Survey. The attending IT usually administers the survey, but if not present at the end of the course, the IOR must provide that opportunity. Completed student surveys must be handled as per division program policy. The survey can be downloaded from the NSP website.

Paperwork Management

Paperwork before the course

- Liability release forms (if required)
- Statement of insurance from NSP, if required by venue owner/manager
- Arrangements for submission of course enrollment fees to the appropriate patrol/region/division treasurer
- Course Syllabus

During the Course

- Maintain student progress logs
- Maintain coordination and support for assisting instructors
- Provide each assisting instructor a division-approved expense reimbursement form if applicable.

After the Course

- May provide NSP Certificates of Achievement to participants who pass.
- Must provide letters of explanation to students with final grades of Fail. Students may be informed of their final grade status verbally, but this must always be backed up in writing.
- All courses must be closed in accordance with current national office procedures within two weeks of completion of the course. All courses not conducted must be cancelled through the website and removed from any calendars they may appear on.
- Local copies of course documents must be submitted in accordance with division, region and patrol policies.

The IOR should retain copies of all post-course documents.

Non-NSP Course Equivalency Credit

NSP members occasionally take avalanche courses from non-NSP providers and later desire NSP course credit. Division avalanche program supervisors are responsible for determining eligibility

for NSP avalanche course equivalency credit using the following guidelines.

General Requirements

The member must request equivalency credit in writing, with the following documentation.

- Certificate from provider indicating successful course completion within the previous 3 years
- A curriculum outline from the providing organization; a course schedule that just lists topics is not usually sufficient.

If the certifying provider's curriculum closely matches a corresponding NSP avalanche course curriculum, equivalency credit may be granted. If granted, the division program supervisor must record this with the national office in accordance with current procedures.

If the non-NSP provider's curriculum does not closely match a corresponding NSP course curriculum, equivalency credit must not be granted.

Once a non-NSP provider's avalanche course has been found equivalent, the division supervisor may add it to a list of approved providers so repeated screening may be reduced.

NSP Level 1 Avalanche Course Equivalency

Division avalanche program supervisors have the option of summarily granting NSP Level 1 Avalanche course equivalency credit (modules 1 and 2) if the non-NSP Level 1 course completion certificate is from any of the following providers.

- American Institute for Avalanche Research and Education (AIARE) Level 1 course
- American Avalanche Institute (AAI)
- Colorado Mountain College
- Silverton Avalanche School
- Alaska Avalanche School
- National Avalanche Foundation's National Avalanche School (NAS classroom module equivalent to NSP L1A-M1; NAS field module equivalent to NSP L1A-M2)

Courses from other providers must be screened for curriculum compatibility according to the general guidelines described above.

NSP Level 1 Avalanche Module 3 Equivalency

All non-NSP Organized Rescue courses must be screened to ensure they are equivalent to the NSP course. This includes ICS-100, 200, and 700.

NSP Avalanche 2 for Rescue Personnel Course Equivalency

There are no non-NSP avalanche courses that meet NSP Level 2 standards

Avalanche Instructor Development and Certification Guidelines

Initial Level 1 Certification

Continuous instructor recruiting and development is necessary for program maintenance and growth. Without a cadre of dedicated, well-trained and skilled instructors to teach our courses, the program could not perform its mission.

Prerequisites

- NSP member or affiliate.
- Professional or affiliate member of the American Avalanche Association; professional member of A3 to be an Instructor of Record
- NSP Level 2 Avalanche for Rescue Personnel course (May be waived by the division program supervisor for entry into the instructor development process, but remains a requirement for Level 1 Avalanche Instructor certification)
- NSP Instructor Development course
- Federal Emergency Management Agency (FEMA) ICS-100, ICS-200 and IS-700 course certifications.

Recruitment

IOR and IT should proactively approach Avalanche Level 2 for Rescue Personnel course graduates who show instructor potential and interest. Explain the instructor development process and notify the division avalanche program supervisor for follow-up.

Entry into Instructor Development

Instructor candidate must submit required paperwork as per current NSP Policies and Procedure and local protocols. The NSP National Office does not accept instructor trainee data; tracking instructor trainee progress is a division responsibility.

Mentoring

Every avalanche instructor trainee must be mentored according to NSP Instructor Development Program policies and guidelines. Instructors qualified to be mentors are identified by the division avalanche program supervisor, region administrator, or IT according to division policy. Mentoring of instructor trainees should include all aspects of lesson planning and delivery, and course management.

If instructors, mentors and available courses are separated by long distances, mentoring may be flexible and opportunistic. For example, an instructor trainee may be mentored in lesson planning and delivery by a primary mentor closest to home but may be mentored in course management by an IOR at an accessible course elsewhere. The primary mentor is responsible for tracking overall instructor development and coordinating with other mentors.

The instructor trainee must teach multiple classroom lessons and field activities in all three Level 1 course modules. Lesson assignments should be varied to evaluate teaching competence across each curriculum. Tracking of instructor trainee activities is done in accordance with division policy. When the mentor determines that the instructor trainee is ready, he or she arranges for an IT to formally evaluate the trainee and forward the evaluation to the division avalanche program supervisor and the trainee's mentor.

Initial Certification

There is little, if any, justification to rush certification. NSP instructor certification is essentially IOR certification. The division avalanche program supervisor must be confident that the person being certified has not only effective teaching and course management skills, but also has the confidence and initiative to conduct courses as IOR.

To certify the trainee, the division avalanche program supervisor sends an email to education@nsp.org requesting that the trainee be added to the Level 1 avalanche instructor roster. This email must contain the trainee's name and NSP number. Although permitted, there is rarely justification for supervisors to delegate this function. Supervisors should know

their instructors, and this is a good way to begin.

Level 2 Instructor Certification

Prerequisites

- Experienced, highly competent NSP Level 1 avalanche instructor with IOR experience in NSP Level 1 Avalanche Modules 1-3
- ICS-100, ICS-200, and IS-700 certification

Recruitment

The Level 2 course IOR and IT should identify especially competent Level 1 instructors and invite them to pursue level 2 instructor certification. In some cases, the Level 1 instructor may be already motivated, qualified and simply needs to apply. In other cases, additional development may be required.

Mentoring

Two levels of instructorship are unique to the NSP Avalanche Program and there are no formal, system-wide mentoring guidelines for progressing from Level 1 to Level 2 instructorship. Division avalanche program supervisors have the prerogative of establishing a mentoring program as needed to help develop motivated Level 1 instructors to meet Level 2 instructor certification requirements.

Initial Certification

The Level 1 instructor submits an NSP Instructor Application for Level 2 certification directly to the division avalanche program supervisor. The application should document completion of prerequisite qualifications and include a copy of his/her activity log. The division avalanche program supervisor reviews the application, activity log, and evaluations in the instructor's file. Certification is based on the following criteria:

- At least one recent evaluation indicating competent performance as IOR of a Level 1 course
- Instructor Activity Reports that indicate teaching a variety of Level 2 classroom topics and field skills
- At least one recent IT evaluation indicating competent performance teaching Level 2 classroom topics and field skills

If any qualifications are in question, the division avalanche program supervisor should request clarification from the instructor or IT. If the supervisor still has reservations about the suitability of the applicant, she/he should return the application to the originator with reasons for turning it down and suggestions for additional development or documentation.

If all qualifications are met, the division avalanche program supervisor forwards the application, supporting documentation and a letter of recommendation, to the national avalanche program director for final approval.

If all qualifications cannot be verified with appropriate documentation, the national avalanche program director will consult with the division avalanche program supervisor to resolve the issue.

Certification of Affiliates

If the individual is a member of an affiliate organization, instructorship is established through processes specified in the affiliation contract negotiated between that organization and NSP.

Instructor Recertification

Level 1 Instructor Qualifications

- Teaching activity during the three-year certification period
  - Teach at each of NSP Level 1 Avalanche Modules 1, 2 and 3, or
  - Teach at least one NSP avalanche Module 4 and Module 5 course every year, or
  - Serve as IOR for at least one Level 1 Avalanche module (any), or
  - Teach at a Level 2 Avalanche for Rescue Personnel course
- IT evaluation indicates satisfactory teaching performance during the certification period
- Participation in at least one NSP Avalanche Program-approved instructor continuing education event
- ID online course
- Membership in the American Avalanche Association at the Affiliate Level (Instructors) or Professional Level (IORs).

Level 2 Instructor Qualifications

- Teaching activity during the three-year certification period
  - Teaches at least one Level 2 Avalanche for Rescue Personnel course during the three-year certification period
  - Teaches at least one each of Level 1 Avalanche Modules 1-5, serving as IOR for at least one of them
- IT evaluation indicates satisfactory teaching performance during the certification period
- At least one NSP Avalanche Program-approved instructor continuing education event
- Instructor certification is automatically renewed if actively serving as an Avalanche IT
- ID online course

Qualified Continuing Education

Typical generic instructor clinics rarely enhance instructor competence in avalanche field activities, which are vital to program quality. Division avalanche program supervisors should develop annual, avalanche-specific instructor continuing education events, conducted by their IT, that include administrative, academic and field components.

The following non-NSP events are automatically approved for the academic component of continuing education.

- The National Avalanche Foundation's National Avalanche School (NAS)
- International Snow Science Workshop (ISSW)
- Professional-level snow and avalanche workshops conducted by Regional Avalanche Centers

Other educational events may be designated as qualifying for avalanche instructor continuing education by the division avalanche program supervisor, using the following general criteria.

- Duration of at least one full day
- Curriculum directly relates to instructional strategies, avalanche science or avalanche rescue which clearly enhances the capability of an NSP avalanche instructor

Recertification Process

Recertification should be based on documented qualifications (e.g. instructor activity reports and evaluations) on file. Division avalanche supervisors should maintain a master record of instructor activity that tracks the performance of each instructor in the program (see template

in Section 7). If records do not reflect sufficient qualifications for recertification, the instructor should be contacted for supplemental information (e.g. participation in qualifying CE clinic/workshop).

Instructor Decertification

Inactivity

If a Level 1 instructor's level of teaching activity and/or participation in continuing education does not meet recertification standards, instructor certification must not be renewed.

A Level 2 instructor, not meeting Level 2 recertification criteria because of insufficient activity, may be recertified as a Level 1 instructor if those qualifications are met; if not, the individual must not be recertified.

Any instructor whose instructorship is discontinued or downgraded due to insufficient activity or continuing education may apply for reinstatement after recertification qualifications are achieved and properly documented. The application for reinstatement is processed in the same manner as an original instructor application.

Substandard Performance

Instructors who fail to demonstrate adequate preparation or effective teaching should be offered appropriate interventions (See "Supervising the Marginal Instructor" in Section 7). If reasonable measures to remedy deficiencies have been offered and declined, or the instructor fails to sufficiently improve performance, the instructorship must not be renewed.

Instructor certification carries the assumption that an instructor is capable and motivated to carry out the responsibilities of IOR in a competent manner. Declining to serve as IOR puts an inequitable burden on the rest of the instructor team and may be grounds for non-renewal of certification.

Likewise, poor course management by the IOR compromises the quality of courses and constitutes grounds for nonrenewal. The following are examples of inadequate course management.

- Conducting a course without first registering it with NSP
- Poorly organized courses or poor coordination of instructors
- Content that is inconsistent with course standards
- Conducting the field portion of a course in a setting that does not provide appropriate conditions required for that level of training
- Inadequate attention to risk management standards and guidelines
- Delinquent submission of post-course documents