



Program FAQs

General Program Information

1) Who should enroll in this program?

Anyone pursuing work that involves travel in and around avalanche terrain. Typical students will likely be working in a related field, currently involved in avalanche work, or aspiring to enter the snow safety industry. For example, students could be a ski patroller who wishes to become more involved with snow safety work, a recent graduate of CMC's Outdoor Recreation Leadership or Ski Area Operations programs, or aspiring avalanche forecaster.

2) What kind of job will the program prepare me for?

Here is a partial list of identified avalanche work industries:

- Ski area snow safety worker/ski patrol
- Regional/Local avalanche forecaster
- Professional avalanche field observer
- Transportation sector avalanche forecaster
- Mountain guide (ski, alpine, snowmobile, snowcat, helicopter, etc.)
- University technician/research assistant
- Government technician/researcher (USDA, USDO, DOD, DOE, state, municipal, etc.)
- Educator (avalanche safety, secondary, technical, etc.)
- College student (supplemental studies for degree or research)
- Environmental scientist
- Public Safety (fire/law/EMS/search and rescue)
- Military specialist

3) What will I get out of this program?

The Avalanche Science Program develops graduates who are solidly prepared to advance in or enter a snow safety worker role. Graduates have a strong background in fundamental knowledge and skills required to work safely in and around avalanche terrain. For example, a typical program graduate will not be qualified to enter work as an Avalanche Forecaster but will have a solid foundation to progress into that role over time. Graduates will benefit from additional time, mentorship, and experience to evolve into a snow-safety leadership position. Our program will provide a solid (and heavily safety-focused) foundation upon which that expertise can grow.

Program graduates will receive American Avalanche Association Pro Level 1 certification, Pro Level 2 certification (if eligible), and a Certificate of Occupational Proficiency as an Avalanche Field Technician.

The Avalanche Science Program is a Career & Technical Education program within Colorado Mountain College. Career and Technical Education (CTE) refers to degrees and certificates designed to prepare you for immediate employment opportunities upon graduation in a specific career. Training is hands-on and



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utilizes state-of-the-art equipment, software, and facilities. In addition to having a majority of instructors who maintain occupations within their field of expertise, many of the career and technical education programs also feature internship or work experience components; these factors help to ensure your training focuses on real-world applications. Through collaboration with industry leaders, career and technical education will provide you with the right mix of skills, training, and knowledge to make you highly competitive in the job market.

The CTE programs at Colorado Mountain College consist of our Associate of Applied Science (AAS) degrees and Certificates of Occupational Proficiency (COP). Many of these degrees have pathways that allow a student to complete a four-year degree.

4) How long is the program, and what courses will I take?

The program requires four semesters of coursework, with a minimum of 25 credit hours. Courses included in the program:

- **MET1050 General Meteorology** (4 credits, 70 contact hours)
- **SAO1066 Avalanche Science Program Introduction** (3 credits, 75 contact hours)
- **SAO1063 Snow and Avalanches I** (2credits, 30 contact hours)
- **SAO1064 Snow Weather and Avalanche Observations I** (2 credits, 60 contact hours)
- **SAO1065 Forecasting I** (1 credit, 22.5 contact hours)
- **SAO1067 Professional Avalanche Level 1 Assessment** (1credit, 30 contact hours)
- **SAO1080 Field Internship** (1-7 credits, 45 hours/credit)
- **SAO2063 Snow and Avalanches II** (3 credits, 45 contact hours)
- **SAO2064 Snow Weather and Avalanche Observations II** (2 credits, 60 contact hours)
- **SAO2065 Forecasting II** (1 credit, 22.5 contact hours)
- **SAO2062 Intro to Avalanche Safety Ops** (1 credit, 22.5 contact hours)
- **SAO2066 Avalanche Safety Ops** (1 credit, 22.5 contact hours)
- **SAO2079 Avalanche Science Portfolio Seminar** (1 credit, 22.5 contact hours)

Electives include: (at least 1 credit required)

- **SAO 2067 Professional Avalanche Level 2 Assessment** (1 credit, 30 contact hours)
- **SAO 2050 Professional Avalanche Search and Rescue** (1 credit, 30 contact hours)
- **GIS 1001 Introduction to Geographic Information Systems** (3 credits, 60 contact hours)

5) How big is the program, how many students?

We limit program numbers to 14-18 students per year. We keep enrollment small to provide low student-to-instructor ratios for enhanced learning and safety during fieldwork in and around avalanche terrain.



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6) Who built the curriculum?

The curriculum was developed by the *Avalanche Science Program Development Team* of Dr. Ethan Greene, Dr. Kelly Elder, Brian Lazar, and Roger Coit, with significant contributions made by a list of other highly qualified folks. We sought input from a broad range of industry professionals to focus our curriculum on needed areas of study within the snow science field. We have hit on just the right mix of subject matter, skills practice, and program duration to build the best graduates prepared for the demands of the industry.

7) Who are the program faculty?

Our program technical advisors are Dr. Ethan Greene, Dr. Kelly Elder, and Brian Lazar. Our instructor team includes Dr. John Snook, Blasé Reardon, Becs Hodgetts, Ben Pritchett, Tim Brown, Bill MacDougald, and other highly experienced and well-regarded industry professionals who are passionate about our subject matter and student success.

8) What's a Hybrid Course?

"A hybrid, or blended course, is a course where some face-to-face meetings are replaced with online or other activities conducted outside the classroom. For example, if your course usually meets Monday, Wednesday, and Friday and you replace the Wednesday class with online activities or fieldwork..."

(From the Colorado Community College System, *Going Hybrid: A How-To Manual*, by Brenda Perea).

Also, from this report: *"...in 2010, the US Department of Education published the results of a meta-analysis of online, hybrid and face-to-face learning outcomes that showed that on average, students who took all or part of their class online performed better than students taking the same course face-to-face. Hybrid learning emerged as the environment with the highest statistically significant learning outcomes."*

Hybrid courses combine the best of face-to-face and online worlds, and when a hybrid course is well designed, it can be a powerful learning environment.

9) How are the classes scheduled? The Avalanche Science Program meets 3-4 times each winter season for intensive on-campus sessions between September and March. These live sessions last from 5 to 9 days. During the rest of the program year, students will continue to engage in coursework online with some courses meeting online in a "live" format regularly each week and others progressing as independent work on a flexible schedule. Students are also required to complete a significant amount of mentored fieldwork in their home area (this work is completed independently and is strictly monitored via the program's Fieldwork Safety Plan).

10) What is a "portfolio-based" educational model?

"A student (learning) portfolio is a compilation of academic work and other forms of educational evidence assembled for (1) evaluating coursework quality, learning progress, and academic achievement; (2) determining whether students have met learning standards or other academic requirements for courses, grade-level promotion, and graduation; (3) helping students reflect on their



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academic goals and progress as learners; and (4) creating a lasting archive of academic work products, accomplishments, and other documentation.” (Portfolio Definition. 2016, February 18. Retrieved from www.edglossary.org/portfolio/)

The Avalanche Science Program will engage students in an ongoing portfolio development process throughout the two-year curriculum, culminating in final project creation during the SAO279 “Avalanche Science Portfolio Seminar” course. We feel strongly that this model promotes an integrated learning experience for our students that will serve them well into their careers.

11) Do I have to complete the entire two years in a row?

Priority will be given to students pursuing the full Certificate of Occupational Proficiency in Avalanche Field Technician running over two consecutive winter seasons. The program will run a single cohort of students (a class of up to 18) each school year, beginning in late August and ending in early May. Some students may take a break between the two program years but must have authorization from the Program director to return and complete the whole sequence of courses.

12) Do I have to enroll in the entire certificate program, or can I take some courses that interest me?

Students may engage in the program variously depending upon their needs. Some students may only want to take selected course offerings and may do so provided they can demonstrate appropriate prior knowledge, experience, and/or qualifications (and if there is room in the classes). Students wishing to enroll in select courses must receive prior approval from the program director. List of “ala carte” courses available:

- MET1050 General Meteorology
- SAO1063 Snow and Avalanches 1
- SAO1065 Forecasting 1

- SAO2050 Professional Avalanche Search and Rescue
- GIS 1001 Introduction to Geographic Information Systems

13) Is there any flexibility for my schedule? I work when it snows. (Hybrid Courses)

Yes! We built the Avalanche Science Program classes as hybrids, blends of on-site and online learning scheduled with the wintertime worker in mind. For example, most program courses require an initial session or two on-campus in the fall and early winter, followed by online work, and then a follow-up on-campus session for further instruction and assessment.

14) Can I take other courses at CMC while enrolled in the Avalanche Science Program?

Yes, but you will need to work with the program director to ensure that the additional courses you would like to take work with the Avalanche Science Program schedule.

15) How does the Avalanche Science Program curriculum compare to the new American Avalanche Association (A3) Pro training, and can I earn my Pro 1 and Pro 2 certificates?



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The A3 has overseen a change in the US avalanche education guidelines from the former Level 1, 2, and 3 progressions to a new “split-track” progression that separates professional avalanche workers from recreationists. The new model includes recreational levels 1 and 2, avalanche rescue, and professional levels 1 and 2 (<https://www.americanavalancheassociation.org/pro-training-program>). The Avalanche Field Technician certificate from the Avalanche Science Program is considered professional-level training and now includes A3 Pro1 and Pro 2 certifications. Students will complete multiple field days and more than 500 hours of instruction and assessment throughout the 2-year program.

Program Location and Logistics

- 1) **Where will the courses be held?** - The program is housed at the Leadville campus of Colorado Mountain College, where we meet for our intensive fieldwork sessions. But, because of our unique “hybrid” delivery model, students from anywhere in the US can attend! (Leadville Campus Map link: <https://coloradomtn.edu/campuses/leadville/>)
- 2) **Do I need to be in Leadville for the entire winter?** No, we have developed the program to accommodate local students and those who may not live in our area. With the hybrid course format (blends of on-site and online learning), students will meet for 3-4 intensive on-campus sessions per winter and then remain engaged back home, completing online coursework and independent fieldwork as guided by their instructors.
- 3) **Is there housing and food available for the on-campus sessions?**
 - a. **On-Campus accommodation:** On campus housing is currently very limited. Our residence hall has been filled to capacity, so we cannot guarantee that housing will be available. Contact the program director to inquire about updated housing needs. Meals are available during the semester through the Coronado Café.
 - b. **Off-Campus accommodation:** There are some local options for visiting students who wish to stay in the area during the on-campus sessions. An excellent place to start would be the Lake County Visitors webpage <http://www.leadvilletwinlakes.com/> or the Leadville Chamber of Commerce <http://www.leadvilleusa.com/>

Program Costs and Financial Aid:

- 1) **How much will the program cost?**

The complete Certificate of Occupational Proficiency in Avalanche Field Technician will require a minimum of 25 credits of coursework to complete: first-year courses total 13 credits, and second-year courses total 12 credits. You should consider program costs a combination of per-credit tuition rate, applicable college fees, individual course charges, program uniform cost,



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travel costs, and any room and board expenses. The information provided in this document is an estimate only, and students should discuss program costs with our campus registration office.

- a. **Tuition:** The Avalanche Field Technician certificate requires 25 credit hours of study over two winter sessions (September through early May). To estimate your tuition costs, please refer to the college's tuition schedule for the specific tuition rate based on your residency status: http://coloradomtn.edu/admissions/tuition_costs/
- b. **Scholarships:** Colorado Mountain College offers many scholarships. The deadline to apply for scholarships is March 1 for the following academic year. Applications are accepted after the due date for a limited number of scholarships. See [Scholarships](#) for more information. For specific guidance on financial aid and program costs, please contact our campus registration office at 719-486-4394 or 719-486-4219.
- c. **Program Required Equipment:** Students will need to supply their own basic field equipment for program work (e.g., clothing, beacon, shovel, probe, snow study tools, etc.) Please refer to the Program Standards document for a specific equipment list.
- d. **Uniform charges:** The College wishes to identify its students in the field and on internships as part of the CMC Avalanche Science Program. We enjoy sponsorship from well-known technical clothing manufacturers and can equip our students with high-quality uniform pieces at a significant discount. Students enrolled in the Certificate of Occupational Proficiency will be required to purchase the basic student uniform (shell and insulation layer) for approximately \$300.
- e. **Course Charges:** You should anticipate paying additional course charges for specific classes with travel or equipment provided by the college. Please see the anticipated course charges in the tables above.
- f. **Travel Charges:** If you are not local to Leadville, you should anticipate some costs related to traveling to campus for in-person sessions.

Program Entry / Application Process

- 1) **How do I apply to the program?** Prospective students are first encouraged to contact our Enrollment Specialist for program application guidance (Brit Rasmussen, bmrasmussen@coloradomtn.edu, 970-947-8327) or speak directly to the program director (Amy Smallwood, aesmallwood@coloradomtn.edu, 719-486-4231).



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Prospective students will first apply to the college (www.coloradomtn.edu > Apply Now) and then complete the supplemental program application. Space is limited in the program. Applying early is recommended. If accepted into the program, your spot is not guaranteed until you have registered and paid for classes. Depending on the timing of your acceptance, you may be required to pay a deposit or pay in full.

2) What are the Program Entry Requirements, and how do I establish that I am eligible? Program entry requirements are detailed in the program application but generally: Students must demonstrate acceptable proficiency levels in math, computer skills, composition and reading, and communication. Students must have previously completed courses in Level 1 Recreational Avalanche Safety, Avalanche Rescue, Wilderness First Responder, and CPR. Students must have appropriate snow travel equipment, cold-weather gear, and the ability to travel safely in mountainous terrain in winter conditions. Some of these program entry requirements may be waived for students enrolling in individual courses to continue professional development and not seeking the full Certificate of Occupational Proficiency.

3) What should I do if I don't know if I meet the program entry requirements?

We encourage you to discuss the program entry requirements with our Enrollment Services Specialist, Brit Rasmussen, bmrasmussen@coloradomtn.edu, 970-947-8327, or speak directly to the program director (Amy Smallwood, aesmallwood@coloradomtn.edu, 719-486-4231) for guidance on what you can do to meet the eligibility requirements. Colorado Mountain College offers courses in all required prerequisite areas, and we can get you the training needed to get you up to speed to join the Avalanche Science Program.

Program Standards

1) Do I have to be a skier?

The answer is “Yes and No.” Students must be able to ski or snowboard at a strong intermediate level for most fieldwork outings or as required by some internship sites. We do not require a specific “mode” of backcountry winter travel for much of the program coursework. However, all students must ski (or split board) for all fieldwork sessions to accomplish curriculum objectives. An introductory snowmobiling module will be a part of the SAO1062 course. Please refer to the Program Standards document for specific expectations of participant abilities and equipment for the program.

2) What equipment do I need for the program?

All program participants must have suitable personal equipment to travel safely at altitude in the wintertime backcountry environment in and around avalanche terrain; please refer to the Program Standards document for detailed equipment requirements and suggestions. In addition to required personal equipment, students enrolled in the complete certificate program must purchase a program uniform for use during fieldwork and internships.