



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. 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 an 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 role as a snow safety worker. 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 very strong 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 a Snow, Weather, and 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 utilizes state-of-the-art equipment, software and facilities. In addition to having a majority of instructors



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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 (A.A.S.) degrees, and Certificates of Occupational Proficiency (COP). Many of these degrees have pathways that provide a student the opportunity to also complete a four-year degree.

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

The program requires four semesters of coursework to complete; a minimum of 23 credit hours. Courses included in the program:

- **MET150 General Meteorology** (4 credits, 70 contact hours)
- **SAO162 Snow, Weather, and Avalanche Field Technician Program Introduction** (3 credits, 75 contact hours)
- **SAO163 Snow and Avalanches I** (2credits, 30 contact hours)
- **SAO164 Snow Weather and Avalanche Observations I** (2 credits, 60 contact hours)
- **SAO165 Forecasting I** (1 credit, 22.5 contact hours)
- **SAO175 Pro 1 Certification Exam** (1credit, 22.5 contact hours)
- **SAO180 Field Internship** (1-7 credits, 45 hours/credit)
- **SAO263 Snow and Avalanches II** (3 credits, 45 contact hours)
- **SAO264 Snow Weather and Avalanche Observations II** (2 credits, 60 contact hours)
- **SAO265 Forecasting II** (1 credit, 22.5 contact hours)
- **SAO175 Intro to Avalanche Safety Ops** (1 credit, 22.5 contact hours)
- **SAO266 Avalanche Safety Ops** (1 credit, 22.5 contact hours)
- **SAO279 SWAT Portfolio Seminar** (1 credit, 22.5 contact hours)
- **SAO175 Pro 2 Certification Exam** (2 credits, 45 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 in order to provide low student to instructor ratios for enhanced learning and for safety reasons during fieldwork in and around avalanche terrain.

6) Who built the curriculum?

The curriculum was developed by the *Avalanche Science Program Development Team* of: Dr. Ethan Greene, Dr. Kelly Elder, Brain 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 feel strongly that we have hit on



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just the right mix of subject matter, skills practice, and duration of program 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, John MacKinnon, Roger Coit, 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.

[Faculty Bios](#)

8) What's a Hybrid Course?

"A hybrid, or blended course, is a course where some of the face-to-face meetings are replaced with online or other activities conducted outside of the classroom. For example, if your course usually meets Monday, Wednesday, Friday and you replace the Wednesday class with online activities or field work..."
(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 came out 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 over each winter season for intensive on-campus sessions between September and March. These live sessions last from between 5 to 9 days. During the rest of the program year students will continue to engage in coursework online- with some courses continuing to meet 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).

[Example program year schedule](#)

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 the purpose of (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 academic goals and progress as learners; and (4) creating a lasting archive of academic work



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

Have a look at this excellent reference article on “portfolio-based” learning- IDEA https://www.ideaedu.org/idea_papers/the-learning-portfolio-a-powerful-idea-for-significant-learning/

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

Priority will be given to students pursuing the full Certificate of Occupational Proficiency in Snow, Weather, and 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 choose to take a break between the two program years but they must have authorization from the Program director in order to return and complete the full sequence of courses.

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

Students may engage 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:

- MET150 General Meteorology
- SAO163 Snow and Avalanches 1
- SAO165 Forecasting 1

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, that are 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. Please refer to the example course schedule for specifics.

[Example program year schedule](#)

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.



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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?

The A3 has overseen a change in the US avalanche education guidelines from the former Level 1, 2, and 3 progression to a new “split-track” progression that separates professional avalanche workers from recreationalists. 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 Snow, Weather, and Avalanche Field Technician certificate from the Avalanche Science Program is considered a professional-level training and now includes A3 Pro1 and Pro 2 certification. Students will complete multiple field-days and more than 500 hours of instruction and assessment throughout the 2-year the program.

Program Location and Logistics

- 1) **Where will the courses be held?** - The program is housed at the Leadville campus of Colorado Mountain College and that’s where we meet for our intensive fieldwork sessions. But, because of our unique “hybrid” delivery model, students from anywhere in the U.S. 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 both local students as well as 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:** The Leadville campus will be holding a number of rooms in the Mountain View Residence Hall for Avalanche Science Program students who need a place to stay while on here for the on-campus sessions. We will also have meal plans available at the Coronado Café (see section on Program Costs and Financial Aid)
 - b. **Off Campus accommodation:** There are some local options for visiting students who wish to stay in the area during the on-campus sessions. A good 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 full Certificate of Occupational Proficiency for Snow, Weather, and Avalanche Field Technician will require a minimum of 23 credits of coursework to complete: first-year courses total 13 credits, second-year courses total 10 credits. You should consider program costs to be a



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combination of per-credit tuition rate, any applicable college fees, individual course charges, program uniform cost, and travel costs as well as any room and board expenses. The information provided in this document is meant as an estimate only and students should discuss program costs with our campus registrations office.

- a. **Tuition:** The Snow, Weather, and Avalanche Field Technician certificate requires a minimum of 23 credits 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 registrations office, 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 list of required equipment.
- d. **Uniform charges:** The College wishes to identify its students in the field and on internships as being a part of the CMC Avalanche Science Program. We enjoy sponsorship from well-known technical clothing manufacturers and are able to 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 an additional course charges for specific classes that have travel or equipment provided by the college. Please see the anticipated course charges in the tables above.
- f. **Room and Board:** Please note that during COVID-19 campus operations, the availability of campus housing or cafeteria meal plans for Avalanche Science Program students is not certain. Please check with campus registrations for current status of housing.

Program Entry / Application Process



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- 1) How do I apply to the program?** Prospective students are first encouraged to contact the CMC Leadville campus registration office for program application guidance (Admissions Representative, Brit Rasmussen, bmras mussen@coloradomtn.edu, 719.486.4394) or speak directly to the program director (Roger Coit rcoit@coloradomtn.edu, 719.486.4259).

Prospective students will first apply to the college (www.coloradomtn.edu > Apply Now) and then complete the supplemental program application online [[Avalanche Science Sample 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 need to 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 for the purposes of continuing professional development and who are not seeking the full Certificate of Occupational Proficiency.

[Example Program Supplemental Application](#)

- 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 Admissions Representative, Brit Rasmussen, bmras mussen@coloradomtn.edu, 719.486.4394) or speak directly to the program director (Roger Coit rcoit@coloradomtn.edu phone 719.486.4259) for guidance on what you can do to meet the eligibility requirements. Colorado Mountain College offers courses in all of the 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 are not requiring a specific “mode” of backcountry winter travel for much of the program coursework although all students will be required to ski (or split-board) for all fieldwork sessions in order to accomplish curriculum objectives. An introductory snowmobiling module will be a part of the SAO162 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?**



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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 full certificate program will be required to purchase a program uniform for use during program field work and internships.