

Snow Science Option

The Snow Science program in the Department of Earth Sciences provides a foundation for understanding the distribution of snow (geography), mechanics of snow (physics, engineering), composition of snow (chemistry), variability of snow (statistics), and ecological effects of snow (ecology, hydrology). Essentially, this degree is a strongly quantitative geo-science degree with a special emphasis on Snow Science and mountain system processes.

It is also one of the best pre-professional programs in the world for those who want to carry their interests in Snow Science into a professional career. Employment ranges from ski patrol, director of snow safety, avalanche-center employee, snow scientist with a federal agency, or consulting in the area of land use planning, transportation engineering, or avalanche protection.

The optimal degree for employment and advancement in snow science is the Master's Degree. Some students interested in college teaching or advanced research may require a Ph.D. degree. The snow science option is an excellent preparatory degree both for employment and for advanced graduate studies, especially in quantitative geo-science fields.

In the Snow Science Option, students progress through a broad-based core of courses that includes introductory geology and geography, calculus, chemistry, physics, weather and climate, geographic information systems (GIS), geomorphology, glacial geology, and mountain geography. In addition to the core of Snow Science courses, students examine spatial analysis of factors important to snow distribution, snow hydrology, snow melt, and the analysis of factors which influence the spatial distribution of snow or snow avalanches. The capstone course is snow dynamics and accumulation. Students are strongly encouraged to consider a graduate degree in snow science to prepare for professional jobs, but such training is not always required.

Courses Required in Department

Freshman Year	Credits
ERTH 101IN - Earth System Sciences	4
GPHY 141D - Geography of World Regions	3
M 171Q - Calculus I	4
M 172 - Calculus II	4
University Core and Electives **	12
ACT 160 - Avalanche 1 Training (Or equivalent)	1
Year Total:	28
Sophomore Year	Credits
CHMY 141 - College Chemistry I & CHMY 142 - College Chemistry I Lab	4
CHMY 143 - College Chemistry II & CHMY 144 - College Chemistry II Lab	4
PHSX 205 - College Physics I	4
PHSX 207 - College Physics II	4
ERTH 303 - Weather and Climate	3
GPHY 121D - Human Geography	3
GPHY 284 - Intro to GIS Science & Cartog	3
University Core and Electives **	5
Year Total:	30
Junior Year	Credits
ERTH 307 - Principles of Geomorphology	4
GPHY 384 - Adv GIS and Spatial Analysis	3
GPHY 329 - Environment and Society	3

STAT 332 - Statistics for Scientists and Engineers (***)	3
Courses from Core and upper Division Electives (below)	17
Year Total:	30
Senior Year	Credits
ERTH 450R - Snow Dynamics and Accumulation	4
GPHY 441R - Mountain Geography	4
GEO 445 - Glacial Geology	3
STAT 411 - Methods for Data Analysis I	3
Courses from Core and upper Division Electives (below)	16
Year Total:	30
Total Program Credits:	120

*** Students with a grade less than B in calculus might consider taking STAT 216Q and STAT 217Q rather than STAT 332.

Upper Division Electives: Take 21 credits from the following

ERTH 484	Climates of the Past, Present and Future	3
GPHY 357	GPS Fund/App in Mapping	3
GPHY 365	Geographical Planning	3
GPHY 402	Water and Society	3
GPHY 411	Biogeography	3
GPHY 425	Geographic Thought	3
GPHY 426	Remote Sensing	3
GPHY 484R	Applied GIS & Spatial Analysis	3
ENSC 444	Watershed Hydrology	3
ENSC 445	Watershed Analysis	3
STAT 412	Methods for Data Analysis II	3
STAT 431	Nonparametric Statistics	3
STAT 436	Introduction to Time Series Analysis	3
STAT 437	Introduction to Applied Multivariate Analysis	3
STAT 446	Sampling	3

Notes:

- A C- is required in all curriculum courses to graduate by Regents' policy. This includes electives in this curriculum.
- A minimum of 120 credits is required for graduation.
- All offerings are dependent upon available staffing.