Ph.D. in Atmospheric and Environmental Sciences
Department of Atmospheric Sciences
South Dakota School of Mines and Technology

Mission
No mission statement has been prepared for this program yet.

Objectives
- Enhance interdisciplinary research at SDSM&T in atmospheric and environmental topics
- Combine theory, experiment, and applications to address regional and local issues (that may be globally significant)
- Link field and laboratory research with larger-scale observations, such as remote sensing
- Build predictive capabilities, useful in regional resource management and climate-sensitive economic development
- Generate marketable applications of regional and global significance
- Create a nationally and internationally recognized research program that produces cutting-edge research
- Prepare its students well for a lifetime of scholarly and/or entrepreneurial activity with particular emphasis on building teams to solve complex problems.

Outcomes
- Students demonstrate a broad understanding of general scientific knowledge in physics, chemistry, and the geosciences.
- Students can utilize tools available for measuring, monitoring, visualizing, modeling, and analyzing environmental systems.
- Students demonstrate specialized advanced knowledge in atmospheric and/or environmental studies.
- Students work effectively with teams to identify and develop solutions to problems requiring multidisciplinary approaches.
- Students achieve familiarity with scientific literature in their area of specialization, including an understanding of the main issues and advances under development.
- Students demonstrate a scholarly understanding of the milestones and of the key contributors whose work marks the progression of knowledge in their area of focus.
- Students can frame a fundamental research problem and develop a technically sound research plan to address it.
- Students can communicate effectively in written standard scientific English.
- Students can communicate effectively in oral presentations.
- Students can identify weaknesses of written and oral presentations, and provide tactful constructive criticism.
- Students demonstrate intellectual honesty when working with data and ideas. They understand the concepts of attribution and plagiarism, as well as the differences between opinion, consensus, hypothesis, theory, and fact.
- Students have made an original contribution to science or engineering.
• Students can define the scope of their contribution and defend the methodology employed based on an understanding of the underlying fundamental concepts.
• Students demonstrate critical thinking skills: to sift through vast quantities of information, to assimilate knowledge and to identify errors, and to develop logical plans to solve problems.
• Students demonstrate good work habits, including setting short-term and long-term goals, evaluating their own progress, organizing critical information, and meeting deadlines. Students must be able to discern critical from non-essential tasks and organize their time effectively.