

**Assurance of Student Learning  
2018-2019**

Ogden College

Geography and Geology

Meteorology 578

**Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.**

**Student Learning Outcome 1:** Students completing the Meteorology program will be able to demonstrate understanding of the theoretical principles surrounding the basic equations and conservation laws that govern atmospheric motion and energy transfer. (*Theoretical Meteorology*)

<b>Instrument 1</b>	<b>Direct:</b> A comprehensive exam is given during the final senior semester to all students completing the Meteorology program. The exam consists of four questions that represent key concepts from each of the eight upper-division courses in the B.S. degree in Meteorology curriculum.
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Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.	<b>Met</b>	Not Met
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**Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)**

In combination with the above student assessment and an ongoing statistical analysis of Meteorology program students, the prerequisites of the 300- and 400-level courses were recently raised to require a grade of C or better for METR 324, MATH 237, METR 431, and METR 432. Our assessment data showed that students who received a grade of D in any of those classes failed to graduate 90% of the time. By eliminating students who struggle with the foundational courses in meteorology, we are ensuring a stronger cohort of graduates who will be more employable and successful in their careers.

The philosophy of the Meteorology Program is to emphasize employable skillsets as a core activity in the curriculum. The field of meteorology is quite competitive with regard to written and oral communication skills, computer skills, interpretative and independent problem solving, among others. Over the years, faculty remain in close contact with the top-sought employers in the field to collect necessary feedback regarding employable students. This information is brought directly into the classroom via assignments, activities, and initiatives. Further, faculty and students in the Meteorology Program routinely invite and host these employers (multiple times each semester) to give workshops, presentations, and network. Faculty and students in the program have also developed strong alumni relations for additional feedback and advice. We feel it is important for the students to hear the advice not only from their professors and mentors, but especially directly from employers and alumni for a well-rounded perspective on how to be successful upon graduation. **In 2018 the WKU Meteorology Advisory Board (14 members) was created** and is comprised of established, successful professionals and alumni across all sectors (government/NWS, broadcast, private sector, emergency management, and academic). Feedback from the Advisory Board will guide the WKU Meteorology Program into the future.

One area of feedback we consistently hear from employers is ensuring graduates have applied forecasting and communication skills. To that end, White Squirrel Weather (WSWX) was created in 2017 to be the WKU campus weather service. WSWX is an applied research, professional work-

force service-learning initiative comprised of students who provide real-time weather observations and public and privatized forecast content to the campus and community. The intent of this initiative is to improve hazards mitigation, emergency preparedness and management, and education outreach. In that way, WSWX develops employable students for post-graduate success, while providing tangible benefits across the university spectrum. Specifically, the Meteorology Program and WSWX work directly with these WKU entities: Athletics, Public Broadcasting, Campus and Community Events, Alumni, Environmental Health and Safety, Facilities and Management, Police, Human Resources, Admissions, Information Technology, Parking and Transportation, Intramurals, Band, Military Science, and the Army National Guard.

<b>Student Learning Outcome 1</b>			
<b>Student Learning Outcome</b>	Students completing the Meteorology program will be able to demonstrate understanding of the theoretical principles surrounding the basic equations and conservation laws that govern atmospheric motion and energy transfer. ( <i>Theoretical Meteorology</i> )		
<b>Measurement Instrument 1</b>	A comprehensive exam is given during the final senior semester to all students completing the Meteorology program. The exam consists of four questions that represent key concepts from each of the eight upper-division courses in the B.S. degree in Meteorology curriculum.		
<b>Criteria for Student Success</b>	The average grade on the 32-question exam should be no less than 80%. For no individual course should the four-question average score be less than 60%.		
<b>Program Success Target for this Measurement</b>	80%	<b>Percent of Program Achieving Target</b>	82.5%
<b>Methods</b>	<ul style="list-style-type: none"> <li>• <b>Overall score</b> <span style="float: right;"><b>82.5%</b>    <b>N = 10</b></span> <ul style="list-style-type: none"> <li>○ <i>Theoretical Meteorology sequence</i> <ul style="list-style-type: none"> <li>▪ Physical Meteorology <span style="float: right;">80.0%</span></li> <li>▪ Physical Climatology <span style="float: right;">95.0%</span></li> <li>▪ Dynamic Meteorology I <span style="float: right;">72.5%</span></li> <li>▪ Dynamic Meteorology II <span style="float: right;">62.5%</span></li> </ul> </li> <li>○ <i>Weather Analysis sequence</i> <ul style="list-style-type: none"> <li>▪ Weather Analysis and Forecasting <span style="float: right;">80.0%</span></li> <li>▪ Synoptic Meteorology <span style="float: right;">85.0%</span></li> <li>▪ Mesoscale Meteorology <span style="float: right;">92.5%</span></li> </ul> </li> <li>○ <i>Weather Instrumentation sequence</i> <ul style="list-style-type: none"> <li>▪ Meteorological Instruments <span style="float: right;">92.5%</span></li> </ul> </li> </ul> </li> </ul>		
<b>Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.</b>			<b>Met</b>
<b>Actions</b> (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			

These results are similar to past cohorts dating back to 2010 when this means of assessment was first used. Since the 2018-19 cohort met the program student learning outcome goals, we will not be making any major changes to the curriculum at this time. Since the curriculum for the B.S. in Meteorology degree is essentially standardized across all Universities and taken from guidelines set forth by both the National Oceanic and Atmospheric Administration (NOAA) and the American Meteorological Society (AMS), there is no real reason to make dramatic changes to the curriculum. Since 2010 around 90% WKU Meteorology graduates have found employment in their major or minor which is nearly double the national average of 50% (Knox 2008). Between our student's employment success, feedback from their employers, and feedback from the WKU Meteorology Advisory Board, we are confident that our student's are meeting this student learning outcome.

**Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)

No follow up is needed at this time.