

Program:	Water Management & Hydrological Science, PhD			
Cycle:	2016-2017			
Mission Statement:	The WMHS program provides graduate students with the intellectual and technical foundation in subjects relevant to water resources including a broad understanding of hydrology and associated ecosystems, and the interplay between the biophysical sciences and human systems to solve water problems. The program prepares the next generation of water scientists, hydrologists and managers for professional and academic careers at the state, national and international levels to improve the availability, security, and reliability of water supplies.			
Outcome/Objective	Measure	Target	Finding	Action Plan
Outcome 1: Students exhibits a coherent understanding, knowledge and expertise regarding theories, principles, and practices of hydrology and water management.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Exhibits a coherent understanding of discipline knowledge" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained between 80 (Meets Expectations) and 90% (Above Expectations).	<i>No affiliated Action Plan</i>
Outcome 2: Students will be able to effectively communicate written and orally through papers and presentations research findings.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Communicate Effectively" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained between 80 (Meets Expectations) and 90% (Above Expectations).	Action Plan 1: Water Daze has been a very successful in the past years and we intend to maintain this event for the coming year. It gives the opportunity to students in the water program to present their work to their peers and be judged, by a team of professors. The feedback they receive help them in their research. Water Daze also given them the opportunity for amock presentation before they present at a national conference. Based on our observations and findings from past events and feedbacks from the judges, we have realized that not all student possess the necessary skills to do a good presentation. We therefore propose to include 6 hours of communication skills, that will include design of posters and PowerPoint presentation, elevator speech, etc. These 6 hours will be taught during before the Water Daze event in the second semester. Further, the Program Coordinator will assist, advise, and guide students as they work on their poster presentations. Responsible Party: C Prakash Khedun (Program Coordinator) and R Karthikeyan (Chair)
Outcome 3: Students will be able to apply water management and hydrological science knowledge in a range of contexts to solve problems, make and justify decisions.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Applies discipline specific knowledge in a range of contexts to solve problems..." portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained between 80 (Meets Expectations) and 90% (Above Expectations).	<i>No affiliated Action Plan</i>
Outcome 4: Students will be able to use a variety of sources and evaluate multiple points of view to analyze and integrate information.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Uses a variety of sources and evaluates multiple points of view..." portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained between 80 (Meets Expectations) and 90% (Above Expectations).	<i>No affiliated Action Plan</i>
Outcome 5: Students will be able to teach or explain the subject matter in their discipline to a broad range of audiences.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Teaches or explains the subject matter to a broad range of audiences" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained between 80 (Meets Expectations) and 90% (Above Expectations).	<i>See Action Plan 1 above</i>
Outcome 6: Students will exhibit proficiency in technology appropriate to solve problems in the water field.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Exhibits proficiency in technology appropriate to solve problems" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained between 80 (Meets Expectations) and 90% (Above Expectations).	<i>No affiliated Action Plan</i>

Outcome 7: Students will be able to choose ethical courses of action in research and practice.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Choose ethical courses of action is research and practice" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained 90% (Above Expectations).	<i>No affiliated Action Plan</i>
Outcome 8: Students will be able to develop clear, hypothesis-driven research plans.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Develops clear hypotheses-driven research plans" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained between 80 (Meets Expectations) and 90% (Above Expectations).	<i>No affiliated Action Plan</i>
Outcome 9: Students will be able to conduct valid, data-supported and theoretically consistent research.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Conducts valid, data supported, and theoretically consistent research" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained above 80% (Meets Expectations) proficiency.	<i>No affiliated Action Plan</i>
	Measure 2: Department will promote graduate students presentations through annual events at the University level and by giving financial support to present their research at professional or academic meetings. This will train students to effectively communicate. This measure counts only graduating students in the corresponding cycle.	80% of students will present at one or more professional meetings by the time they complete the program.	Target: Met 1 out of 2 students who graduated in this cycle has presented at 5 national conferences. The second student completed his thesis in his native country.	
	Measure 3: Department will track graduate student publications in refereed journals. This measure counts only graduating students in the corresponding cycle.	75% of students will submit or publish refereed research article by the time they complete the program.	Target: Met 1 out of 2 students who graduated in this cycle has presented 5 national conferences, while the second one is working on manuscripts from his thesis.	
Outcome 10: Students will be able to disseminate research results in appropriate contexts.	Measure 1: Each student graduate committee will collectively assess proficiency using University developed rubric.	Above 80% proficiency (meeting and above expectations) according to the "Effectively disseminates research results in appropriate contexts" portion of the rubric.	Target: Met 2 out of 2 PhD students (100%) obtained above 80% (Meets Expectations).	<i>See Action Plan 1 above</i>
	Measure 2: Department will promote graduate students presentations through annual events at the University level and by giving financial support to present their research at professional or academic meetings. This will train students to effectively communicate. This measure counts only graduating students in the corresponding cycle.	80% of students will present at one or more professional meetings by the time they complete the program.	Target: Met 1 out of 2 students who graduated in this cycle has presented 5 conference papers, either as first author or co-author. The second student completed his research in his native country and is working on manuscripts from his thesis.	
	Measure 3: Department will track graduate student publications in refereed journals. This measure counts only graduating students in the corresponding cycle.	75% of students will submit or publish refereed research article by the time they complete the program.	Target: Met 2 out of 2 students (100%) who graduated in this cycle are working towards publishing their research. 1 student has already published 5 conference papers, either as first author or co-author, while the second student is working on manuscripts from his thesis.	<i>No affiliated Action Plan</i>

<p>(Analysis Question #1) Consider the Findings and the Action Plan(s) established this cycle. How did the program/unit identify these next steps for action? Why does the program/unit believe this Action Plan(s) should improve future assessment results?</p>	<p>The Water Management and Hydrological Science program is an interdisciplinary program. Students admitted into the program have a varied background and interest. They have the flexibility to choose courses and research topics based on their interest and career objective(s). While they are able to acquire the technical skills they need through the various courses they take at the university, they do not get the opportunity to develop their communication skills, which is extremely important for someone who will be operating in an interdisciplinary environment.</p> <p>Water Daze, an annual event since Spring 2013, gives the opportunity to every student to present a poster at least twice while they are enrolled at the university. The event serves as a platform where students are able to present their work to their peers and professors, and be judged by a team of professors. The feedback they receive enable them to improve their presentation and communication skills. It also gives them the opportunity for a mock presentation before they attend a national or international conference.</p> <p>Based on the findings and feedback received, we note that both students and faculty welcome this event. The quality of presentations gets better every year (we had two first place winners in the last two Water Daze). Nonetheless, some students skill lack the skills for a quality presentation, since there are no class that prepares them for that. Hence, we have added a new action plan (Improve Communication Skills) for the next assessment cycle.</p>
<p>(Analysis Question #2) Provide an update for completed or ongoing action plans from the previous year(s). Discuss any successes, challenges, and/or obstacles the program/unit has experienced while implementing the Action Plan(s). Address whether or not the program/unit has seen any improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were designed to address and why the action plan may/may not have resulted in improvements.</p>	<p>Action Plan Completed: WMHS 602 Study Abroad and Water Daze poster competition. Action Plan in Progress: Increase Targets for Measure 2: Effectively communicate..., WMHS Seminar</p> <p>WMHS 602, Water Daze poster completion and Masters Student Seminar has been very successful. We are keeping them as a recurring event such that new group of students in the program are able to benefit from them. The quality of work presented keeps improving every year.</p> <p>"Increase Targets for Measure 2: Effectively communicate..." is an ongoing process. Every PhD student faces different level of difficulty in their research. Some are able to publish several journal articles while in the program and within a year or two after graduation, while others face more challenges. Nonetheless, we are maintaining this target as we want to encourage high level publications from each PhD student.</p> <p>We have added a new action plan (Improve Communication Skills) to help student prepare and deliver better presentations.</p> <p>The WMHS Seminar for PhD students is ongoing. We will maintain this requirement for PhD student in the water program.</p>