Table 1

Description and Classification of Course Activities

Title	Disciplinary Focus/Foci	Guiding 5E/Inquiry Question	Description	Formal Science Resources	Informal Science and Community Resources	Safety Procedures
River Literature	• Literature	What is the role of literature in the expression, construction, and understanding of rivers and their roles in our lives?	Introduction to basic poetic analysis and engagement in group critical analysis of Langston Hughes's "The Negro Speaks of Rivers," followed by discussion about the cultural and artistic role of watersheds in the American imagination.	• University Course Professor(s)	None	N/A
Natural/Cultural History: Museum Collection	• Museum Studies	What do the artifacts and specimens from the Brazos River collection tell us about the river's history and future?	Exploration of the museum's extensive river collections with the guidance of museum collection and education staff.	• University Course Professor(s)	• Museum river collection access • Museum collections staff • Museum education staff	• Gloves worn by any individual handling collection specimens
River Trip	• Field Studies	What are the physical characteristics of the Brazos River as revealed through a personal firsthand experience?	River paddling trip to explore physical characteristics, flora and fauna of river upstream from campus and to reflect on and discuss an important historical narrative about the river.	• University Course Professor(s)	• Spouses and children of university faculty and staff	• Life jackets required and worn by all participating individuals • Review of safe canoeing protocols
Water Management Panel	• Water Policy	What entities, individuals, and factors are considered in managing the Brazos River?	Participation in a moderated panel discussion of water policy by water experts at the local city government, state agency, nonprofit, and federal government levels.	• University Course Professor(s) • Other University Classes (e.g., Limnology) and Professors	• Large area with auditorium seating and full public access (e.g., Mayborn Museum Theater) • Panel members (e.g., representatives from state's/city's Parks	N/A

					and Wildlife Dept., Army Corps of Engineering, Commission on Environmental Quality, Nature Conservancy, Commissioner, and River Authority)	
Water Policy and Environmental Ethics	• Environmental Science	What laws, policies, and ethical considerations directly impact the ownership and management of rivers?	Discussion of water policies and laws, at local, regional, national, and international levels, including a discussion of environmental ethics.	• University Professor of Environmental Law	None	N/A
Environmental Justice	• Sociology • Religion	How can moral and ethical considerations impact river-related perceptions and interactions?	Discussion of the complicated moral implications emerging from human/river interactions, including questions about who is responsible for caring for the river and why, which rationales or worldviews might justify specific actions, and what goals ought to be pursued and prioritized.	• University Course Professor(s)	None	N/A
Water Contaminants and Pollutants	• Environmental Toxicology • Environmental Chemistry • Ecology	How could we explore the evolution and impacts of regulations on substances that are harmful to river environments?	Lecture and discussion of water quality regulations (state, and national levels) and an introduction to ecotoxicology.	• University Course Professor(s)	None	N/A
		How can we measure, and what does data reveal	Measurement and analyses of basic water quality parameters (pH,	• University Course Professor(s)	None	• Safety training in both use of water quality

Water Quantity and Quality Lab	• Environmental Chemistry • Ecology	about the health of a river?	temperature, conductivity, dissolved oxygen) and river discharge.			equipment and stream velocity gauges. Lab conducted in a wading-level stretch of the river. Two instructors supervised all river activities.
Environmental Economics and Cost/Benefit Assessment	• Environmental Economics	What factors should be considered when evaluating the costs and benefits of environmental actions specific to rivers, and how can we measure those costs and benefits?	Collective development of a survey instrument to elicit environmental attitudes and willingness to pay for beautification and remediation projects associated with the river running through the university campus. Survey used to collect data and estimate support for said projects.	• University Course Professor(s)	None	N/A
River Stations and Exhibit Trunks	• Environmental Education	What are appropriate questions, processes, and activities to share with community members to enhance their interest in and understanding of rivers?	Introduction to 5E inquiry lesson cycle followed by design and implementation of hands-on, inquiry-based activities shared with community members during a Museum Water Day and elementary students during a museum field trip.	• University Course Professor(s)/ Teacher Educators • Elementary Classroom Teachers	• Museum education staff	• Consideration and implementation of all safety processes and procedures applicable to working with young children (NSTA *Safety in Elementary Science*: https://static.nsta.org/pdfs/SafetyInElementaryScience.pdf)

Urban Water Cycle Tour	• Ecology • Field Studies	What is an urban water cycle and how does our community ensure water is provided to meet human needs and environmental requirements?	Participation in physical in-person tour of city facilities that traced the path of water in the community from intake at source water lake, to drinking water treatment plants, to wastewater treatment plant, to final discharge of treated effluent into the local river.	• University Professor(s)	• City water manager(s) • Water treatment plant operators • Wastewater treatment plant operators	• City safety procedures explained by city personnel and followed for each site visited.
Global Water Issues	• Water Policy and Management	What perspectives, issues, and considerations are revealed and changed when the lens for examining rivers is expanded from a local to a global scale?	Participation, via a video conference call, in a discussion of global water issues with former U.S. Secretary of the Interior, Sally Jewell.	• University Professor(s)	• Individual(s) with expertise in the management and conservation of federal land and natural resources and global perspectives regarding the same (e.g., U.S. Secretary of the Interior)	• N/A