Workshop 1: Chemical, Environmental, and Materials Engineering

Week 1	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan	28-Jan
Instructor	Prof. Chang-Yu Wu	Prof. Samiul Amin	Prof. Samiul Amin	Prof. Samiul Amin			
Morning	Meet the department chair.	•What is Chemical Engineering •What do Chemical Engineers do? •Types of Roles-R&D, Process, Academia, Legal/IP	•Introduction to Colloids and Soft Matter •Application of Soft Matter in high growth industries-Consumer Goods, Nanotechnology, Biopharma •User Centric Product Design in Consumer Goods •Formulation of Consumer Products	•Introduction to Rheology/DLS •Optimizing Formulations	Cruise (Miami - Key West - Ocean Cay - Bahamas - Miami)		
Afternoon	Lab visit - SML, ACCESS Lab, 3D printing facilities, Aerosol Lab, Characterization Lab, SEM lab	Where do Chemical Engineers work - Consumer Goods, Cosmetics, Nanotechnology, Phama and Biopharma, Chemicals/PetroChemicals, Renewable Energy, Environment	Hands-on lab •Formulating a Shampoo •High Throughput Robotic Platform Demo	Hands-on lab •Rheology •DLS			

Week 2	29-Jan	30-Jan	31-Jan	1-Feb	2-Feb	3-Feb	4-Feb
Instructor	Prof. Yang Wang	Prof. Yang Wang	Prof. Helena Solo-Gabriele	Prof. Prannoy Suranani	Jan (Director of the admission office)		
Morning	Introduction to Environmental Engineering – What do environmental engineers do? Where do environmental engineers work?	Air Quality	An Engineers Approach to Evaluating Sources of Bacteria to Coastal Waters.	Introduction to MS in Materials Engineering: Why is Materials Engineering Important? Different Thrusts in Materials Engineering at UM. Relevant Faculty. Future Plans – PhD, Jobs. Special aspects	How to apply for U.S graduate schools	Weekend Travel Tour	
Afternoon	Hands-on lab – testing of mask performance	Hands-on lab – Real-time aerosol measurement	Hands-on lab – microbiological analysis of beach and water samples	Hands-on lab – Making concrete including fun shapes. Using a furnace on concrete.	Campus visit		

Week 3	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb
Instructor	Prof. Prannoy Suranani						
Morning	UM research in Materials Engineering. Concrete. Batteries. Aerosols. Experimental and Modeling Techniques	Guest Speaker	Group Presentation				
Afternoon	Hands-on lab – Breaking some concrete. Imaging concrete under an electron microscope. Running a thermogravimetric analysis test on some concrete. Doing some 3D printing. Taking some concrete specimens home.	Guest Speaker	Farewell party	Student Departure		-	