



Korea University International Summer Campus (KU ISC) 2021

Embark on a unique summer

July 12, 2021 ~ August 5, 2021

ISC501 – Introduction to water treatment and public health

I . Instructor

Professor	:	JAEHONG KIM
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Home Institution	:	Yale University
Office	:	TBD
Office Hours	:	TBD

II. Textbook

Required Textbook	:	Not required
Recommended Additional Readings	:	TBD

III. Course Description and Objectives

This intense course is designed for M.S. and Ph.D. students majoring in environmental health. Class meeting in each day consists of seminar and lecture. The seminar will cover state-of-art research subjects in the field of environmental health engineering in the format of public seminar. The lecture will also cover advanced human technologies but will focus on fundamentals including chemistry, mass transfer, and process engineering in the format of graduate class. A couple of lectures will focus on other aspects of graduate education, such as technical writing and career development consulting. Students will also examine recent articles on the topics such as: (1) energy and environment; (2) new membrane materials; (3) environmental implication of nanomaterials; (4) environmental application of nanomaterials; (5) future environmental technologies, make an oral presentation, participate in a round-table discussion, and practice a peer-evaluation.

IV. Grading

Midterm Exam	:	
Final Exam	:	50%
Assignments	:	30%
Participation	:	20%

V. Class Outline

Date	Topic	Chapter	Remarks
July 12 (Mon)	Orientation Day (No Classes)		
July 13 (Tue)	Introduction / Decentralized Water Treatment		
July 14 (Wed)	Ozone Disinfection Process Design and Optimization		
July 15 (Thu)	Flow Visualization by 3DLIF and LES		
July 16 (Fri)	(Make-up classes for OT)		
July 19 (Mon)	Lanthanide-Based Vis-to-UV Upconversion		
July 20 (Tue)	Photocatalysis and Triplet-Triplet Annihilation Upconversion		
July 21 (Wed)	Boron Removal by Reverse Osmosis Membrane		
July 22 (Thu)	Porous Membranes – Solute Rejection and Fouling Control		
July 26 (Mon)	Environmental Implication and Application of Nanomaterials		
July 27 (Tue)	Environmental materials beyond and below nanoscale: single-atom catalysis		
July 28 (Wed)	Effective Technical Writing & Academic Career Advising 1		
July 29 (Thu)	Effective Technical Writing & Academic Career Advising 2		
Aug 2 (Mon)	Tips for research and career development 1		
Aug 3 (Tue)	Tips for research and career development 2		
Aug 4 (Wed)	Tips for research and career development 3		
Aug 5 (Thu)	/ Graduation Day		