

Course No.	457.621	Lecture No.	001	Course Title (Subtitle)	Biological processes in environmental engineering			Credit	3
Representative Instructor	Name	Yongju Choi (post : Assoc. Prof.)			Homepage	http://wqe.snu.ac.kr			
	E-mail	ychoi81@snu.ac.kr			Phone No.	02-880-7376			
	Interview Time/Place : TBD								
Prerequisite Course									
* Course keyword	Environmental engineering, Biotechnology, Biological treatment, Resource recirculation, Wastewater treatment								
* 1.Purpose of Course	Understand the background, theories, techniques, and applications of biological approaches for the management of water, soil, and solid waste. Obtain in-depth knowledge on the biological approaches applied for wastewater treatment and resource recovery from organic wastes, study current issues of research, and discuss the future direction of research and applications.								
* 2.Materials and Reference	1. Handouts 2. Rittmann, B. E. and McCarty, P. L. (2001) Environmental Biotechnology: Principles and Applications, McGraw-Hill								
* 3.Evaluation Method	Attendance	Task	Medium	Final	Random Evaluation	Attitude	Other	Total	
	10	15	0	40	10	0	25	0	
	Attendance Policy : Students who are absent for over 1/3 of the class will receive a grade of 'F' or 'U' for the course. (Exceptions can be made when the cause of absence is deemed unavoidable by the course instructor.)								
	Remark of Others : Student presentation & discussion								
* 4.Lecture Plan	W01: Introduction to biological processes in environmental engineering / Basics of microbiology W02: Enzyme reactivity and inhibition / Stoichiometry of biochemical reactions I W03: Stoichiometry of biochemical reactions II & III W04: Microbial energetics / Microbial kinetics W05: Reactor analysis I & II W06: Microbial kinetics in reactors I & II W07: Microbial kinetics in reactors III / Bioreactor analysis – numerical solution W08: Wastewater treatment overview / Biological wastewater treatment I W09: Biological wastewater treatment II & III W10: Anaerobic processes / Microbial fuel cells W11: Recalcitrant compound biotransformation mechanisms / Discussion & review W12: Final exam W13-15: Student presentation & discussion								
5.References to Course Registration	1. This class is run in English. At least moderate ability of English listening and reading is required. 2. W01-11 will be run with pre-recorded online lectures that will be available for streaming at eTL. Students should take online quiz at the beginning of every scheduled class time. Those who do not take the online quiz will be regarded to have failed in attending the class. 3. Final exam will be done off-line. 4. Student presentation & discussion will be done online via Zoom.								
6. Support Services for Students with Disabilities ※ You can modify these default contents.	For Lectures	<input type="radio"/> Visual Impairment: Make textbooks(digital textbook, braille textbook, enlarged textbook etc.), Allow note takers <input type="radio"/> Physical Disability: Make textbooks (digital textbook), Allow note takers and assistants <input type="radio"/> Hearing Impairment: Allow note takers and translators, Allow lecture recording <input type="radio"/> Health Impairment: Excuse absence due to health problems, Allow note takers <input type="radio"/> Learning Disability: Allow note takers <input type="radio"/> Intellectual Disability / Autism Spectrum Disorder: Allow note takers and mentors							
	For Assignments & Evaluations	<input type="radio"/> Visual Impairment / Physical Disability / Hearing Impairment / Health Impairment / Learning Disability: Extend assignment deadlines, Offer alternate assignment submission and response method, Extend testing period, Offer alternate testing method, Offer different testing room <input type="radio"/> Intellectual Disability / Autism Spectrum Disorder: Offer individualized assignments and alternative evaluations							
	Others	Students who take this course can get appropriate level of support service including the support listed above depending on the students' individual characteristics and needs through consultation with professors and the Support Center for Students with Disabilities. If you have any questions concerning support service for students with disabilities you can contact Professor *** (02-880-****) or Support Center for Students with Disabilities (02-880-8787).							