

ECE/BioE 416 - Biosensors - Spring 2021

Date	Day	Topic	HW Due	Term Paper
Jan	25	M	Course introduction	
	27	W	Intro to biosensors	
	29	F	Intro to biosensors & term paper description	
Feb	1	M	Applications and statistics	
	3	W	Bioselective layers	
	5	F	Biomolecular structure and function	HW1
	8	M	Biomolecular structure and function	
	10	W	Mass transport	Choose Topic
	12	F	Mass transport	
	15	M	Assay types/Figures of merit	
	17	W	BREAK DAY - NO CLASS	
	19	F	Electrochemistry	HW2
	22	M	Electrochemistry	
	24	W	Clark electrode for glucose sensing	Liter. Review
	26	F	Surface plasmon sensors	
March	1	M	Surface plasmon sensors and nanoparticles	
	3	W	Acoustic and photoacoustic sensors	
	5	F	Optical biosensors	HW3
	8	M	Optical biosensors	
	10	W	Impedance-based biosensors	New Idea
	12	F	Fluorescence	
	15	M	Fluorescence	
	17	W	In-vivo fluorescent glucose sensors	
	19	F	Fluoro resonance energy transfer (FRET)	HW4
	22	M	BREAK DAY - NO CLASS	
	24	W	Fluorescent beads - Luminex	
	26	F	Guest Lecture (SHIELD COVID Testing)	
	29	M	Digital resolution biomolecule sensing - Quanterix	Specific Goals
	31	W	Pathogen Diagnostics & Droplet Digital PCR	
April	2	F	Avidin-biotin system	
	5	M	Transducer functionalization methods	
	7	W	Transducer functionalization methods	
	9	F	Next generation DNA sequencing	HW5
	12	M	Next generation DNA sequencing	
	14	W	Raman spectroscopy	Prelim Results
	16	F	Raman spectroscopy	
	19	M	Guest Lecture - Prof. Xing Wang	
	21	W	Surface enhanced Raman spectroscopy	
	23	F	Nanoparticle Labels: Quantum Dots	
	26	M	Guest Lecture - Prof. Yang Zhao	
	28	W	Fluorescence amplification	
	30	F	Smartphone biosensors	
May	3	M	Photonic crystal biosensor microscopy	
	5	W	Photonic crystal biosensor microscopy	Term Paper Due

Final Exam Session: Celebration!!! Students present their term paper ideas.