

# Biology of the Inner Ear 2022

		BIE 2022 - Week 1							BIE 2022 - Week 2							BIE 2022 - Week 3							Wrap Up							
Week day		Wed	Thurs	Fri	Sa	Su	Mon	Tu	Wed	Thurs	Fri	Sa	Su	Mon	Tu	Wed	Thurs	Fri	Sa	Su	Mon	Tu	Wed	Thurs						
7:00:00 AM	DATE	8/3/22	8/4/22	8/5/22	8/6/22	8/7/22	8/8/22	8/9/22	8/10/22	8/11/22	8/12/22	8/13/22	8/14/22	8/15/22	8/16/22	8/17/22	8/18/22	8/19/22	8/20/22	8/21/22	8/22/22	8/23/22	8/24/22	8/25/22						
		students arrive	Breakfast																											
			Introductions				Inner Ear and Lateral Line							Systems							Hearing Loss & Repair									
			Orientation	cochlear & vestibular	inner ear development		inner ear development	hair cell dev / regeneration	Zebrafish lateral line	Hair cell transduction	hair cell synapses	cochlear mechanics		vestibular system	psychoacoustics	peripheral encoding	central encoding	hearing loss and treatments			wrap up									
9:00:00 AM	SEMINAR 1	Orientation	Cochlear structure & function - RUTHERFORD	Cochlear development - GROVES		Control of cell growth in the ear - DOETZLHOFFER	Hair cell development - WALTERS	Lateral Line development - KINDT, SHEETS, TRAPANI	Hair cell transduction - COREY	Hair cell synapses - cochlear GLOWATZKI	Outer hair cells - ASHMORE		Vestibular analysis of head motions - CULLEN	Psychoacoustics - RICHARDS	Auditory nerve information - BOURIEN	Processing of binaural disparities - TOLLIN	Perceptual learning in auditory cortex - CARAS	Noise damage, synaptopathy, Hidden Hearing Loss - KUJAWA		Inner ear stem cells - KOEHLER	Hereditary Hearing Loss - MORTON	Wrap Up presentations								
10:00:00 AM	BREAK																													
10:30:00 AM	SEMINAR 2	Sound - JORIS	Vestibular structure & function - DICKMAN	Neuronal development & afferent innervation of the ear - COATE		Development of the vestibular inner ear - WU	Hair cell regeneration - GALE	Lateral Line function - KINDT, SHEETS, TRAPANI	Hair cell adaptation - COREY	Hair cell synapses - vestibular EATOCK	Cochlear mechanics - VAN DER HEIJDEN		Vestibular disorders - CAREY	Cochlear prostheses - GOLDSWORTHY	Structure-function in auditory brainstem - JORIS	Encoding sound features from midbrain to cortex - ESCABI	Fly hearing - EBERL	Ototoxicity & Otoprotection - CUNNINGHAM		Inner ear transcriptomics & epigenetics - HERTZANO	Gene therapy for hearing & balance disorders - CHIEN	Wrap-Up Presentations								
11:30:00 AM	LUNCH																													
1:00:00 PM	TUTORIALS	Chick inner ear - WARCHOL	Ggenetically modified mice - GROVES	Confocal Microscopy - GALE		Spiral ganglion - DABDOUB, COATE	Electron microscopy - SEM and TEM - LYSAKOWSKI	Zebrafish labs - KINDT, SHEETS, TRAPANI	CELL EPHYS labs - INDZHYKULIAN, ROBERTS	CELL EPHYS data collection, analysis; ALL	CELL EPHYS tutorials - ASHMORE		Vestibular lab tutorial - SADEGHI	Sound and Signals - VAN DER HEIJDEN	Systems labs intro - JORIS	Evoked auditory responses: ABR, DPOAEs - LAUER	Optical coherence tomography - VAN DER HEIJDEN	Cephalopod & fish hearing ROSALYN PUTLAND (MBL Grass fellow)		Inner Ear Transcriptomics and Epigenetics - HERTZANO	Q&A	Student feedback								
2:30:00 PM	STRUCTURED LABS	Settle in, ID cards	Dissecting, immunostaining chick utricle - WARCHOL, TAS	Dissecting, immunostaining neonatal mouse cochlea - DOETZLHOFFER, TAS	Culturing, immunostaining, vibratome - GALE, LYSAKOWSKI, TAS	Dissecting, culturing spiral ganglia - DABDOUB, COATE	electron microscopy: SEM & TEM labs - LYSAKOWSKI, WALTERS	Lateral Line projects - KINDT, SHEETS, TRAPANI	CELL EPHYS 1 transduction - INDZHYKULIAN; transmission - VINCENT; Brain slice - ROBERTS	CELL EPHYS 2 transduction - INDZHYKULIAN; transmission - VINCENT; Brain Slice - ROBERTS	CELL EPHYS 3 transduction - INDZHYKULIAN; transmission - VINCENT; brain Slice - ROBERTS		Vestibular reflexes: labs / demos; CAREY, SADEGHI, CULLEN	Demo OCT, Demo psychoacoustics	SYSTEMS 1: ABR/DPOAE; in vivo gerbil nerve/CN; IC/CTX - LAUER, BREMEN, JORIS	SYSTEMS 2: ABR/DPOAE; in vivo gerbil nerve/CN; IC/CTX; LAUER, BREMEN, JORIS	SYSTEMS 3: ABR/DPOAE; in vivo gerbil nerve/CN; IC/CTX - LAUER, BREMEN, JORIS	Individual projects	Individual projects Gemma boat trip 1	Individual projects Gemma boat trip 2	Wrap-up presentations									
4:00:00 PM																						Paint fills of the inner ear - WU	Paint Fills of the inner ear - WU	Paint fills of the inner ear - WU						
6:00:00 PM	DINNER	Welcome BBQ																			student feedback / dinner					student feedback / dinner				
8:00:00 PM	SPECIAL	FACULTY/ TA INTROS 1	FACULTY/ TA INTROS 2	Responsible Conduct of Research (RCR) 1: ANIMALS	DSL - DICKMAN Magnetic sensing	DSL - DABDOUB	FACULTY/ TA INTROS 3	DSL - TAIT SANCHEZ - avian auditory processing	FACULTY/ TA INTROS 3	RCR 2: DATA Handling	FACULTY/ TA INTROS 4	DSL - THEWISSEN - evolution of cetacean hearing	DSL - MOSS - bat echolocation	CAREER discussions	FACULTY INTROS 5								Farewell Party							
9:00:00 PM	OPEN LAB TIME	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	OPEN LAB	Wrap-up presentations	Farewell Party								
12:00:00 AM																														

students depart