

Module 1: Microscopy, Echinoderms, Tunicates and Other Basal Deuterostomes (May 30 - June 6)		
5/30/26 (Sat)	Reception & Dinner, 7pm 2 nd Floor Loeb (Rm #256)	Tatjana Piotrowski , (Stowers Institute); Athula Wikramanayake , (Univ. Miami), <i>Welcome and Course overview. Bring your posters</i>
5/31/26 (Sun)	Morning lecture (9:00am-11:00am Speck)	Athula Wikramanayake , (Univ. Miami) and Nipam Patel (MBL). <i>Intro to Developmental Biology and metazoan body plans</i>
	Afternoon lab (1PM)	<i>Marine Resource Center tour and tour of Loeb. (1-3PM)</i> Jon Henry , (MBL), Margherita Perillo (MBL), Athula Wikramanayake (UMiami), <i>Tool making & microinjection (use echinoderms to practice microinjections) (3-6PM)</i>
	Evening lab (7:30PM)	<i>Continue tool making & microinjection</i>
6/1/26 (Mon)	Morning lecture (9:00am-11:00am Speck)	Lisa Cameron , (Duke U.), Paula Montero Llopis (Harvard), Praju Vikas Anekal (Harvard). <i>Light and confocal microscopy</i>
	Afternoon lab (1pm)	Lisa Cameron , (Duke U.), Paula Montero Llopis (Harvard), Praju Vikas Anekal (Harvard). <i>Light and confocal microscopy</i>
	Evening lab (7:30pm)	Lisa Cameron , (Duke U.), Paula Montero Llopis (Harvard), Praju Vikas Anekal (Harvard). <i>Light and confocal microscopy</i>
6/2/26 (Tue)	Morning lecture (9:00am-11:00am Speck)	Athula Wikramanayake , (Univ. Miami), <i>Introduction to echinoderms and early patterning</i> Vanessa Barone (Hopkins Marine Station, Stanford University), <i>Introduction to sea stars and early patterning</i>
	Afternoon & evening labs	<i>Echinoderms</i>
6/3/26 (Wed)	Morning lecture (9:00am-11:00am Speck)	Mansi Srivastava , (Harvard), <i>Acoel development & regeneration</i>
	Afternoon & evening labs	<i>Acoels, Echinoderms</i>
6/4/26 (Thu)	Morning lecture (9:00am-11:00am Speck)	Alejandro Sanchez Alvarado , (Stowers Institute), <i>"Dissecting the biological complexity of animal regeneration" and "Understanding the sources of regenerative capacities in animals"</i>
	Afternoon & evening labs	<i>Planaria, acoels, echinoderms</i>
6/5/26 (Fri)	Morning lecture (9:00am-11:00am Speck)	Margherita Perillo , (MBL), <i>Sea stars and sea cucumbers as models for organogenesis</i> Greg Wray (Duke) <i>Life (history) in the fast lane: evolution of rapid premetamorphic development in <i>Heliocidaris</i> sea urchins</i>
	Afternoon tours	<i>Planaria, Acoels, Echinoderms</i>
	Evening lab	
	1:30pm- 2:15pm, Tours	Group A: MRC Group B: Library
	2:15pm- 3pm, Tours	Group A: Library Group B: MRC
6/6/26 (Sat)	Location TBD	Student Symposium
	Afternoon & evening labs	<i>Planaria, acoels, echinoderms</i>
6/7/26 (Sun)	7:00pm	<i>Scavenger hunt and course dinner</i>
<i>Things to do this week: T-shirt design for class, softball t-shirt, parade committee</i>		
Module 2: Nematodes, Tardigrades, Ascidians (June 8-13)		
6/8/26 (Mon)	Morning lecture (9:00am-11:00am Speck)	Dave Sherwood , (Duke), <i>An introduction to <i>C. elegans</i>, and Basement membranes-a dynamic and adaptive scaffolding</i>
	Afternoon & evening labs	<i>C. elegans</i>
6/9/26 (Tue)	Morning lectures (9:00am-11:00am Speck)	Dan Dickinson (UT Austin), <i>Establishing and remodeling cell polarity</i> Geraldine Seydoux , (Johns Hopkins/ HHMI), <i>Germ granules: form and function of biomolecular condensates</i>
	Afternoon lab	<i>C. elegans</i>
6/10/26 (Wed)	Morning lecture (9:00am-11:00am Speck)	Bob Zeller , (San Diego State Univ.), <i>Introduction to ascidian development - sea squirts made easy;</i> Ed Munro , (Univ. Chicago), <i>Dynamics of morphogenesis in ascidians</i>
	Afternoon & evening labs	<i>Ascidians, C. elegans</i>
6/11/26 (Thu)	Morning lecture (9:00am-11:00am Speck)	Emma Farley (UCSD). <i>Gene Regulatory Networks.</i>
	Afternoon & evening lab	<i>Ascidians, C. elegans</i>
6/12/26 (Fri)	Morning lecture (9:00am-11:00am Speck)	Bob Goldstein , (UNC Chapel Hill), <i>Tardigrades!</i> Ed Munro (Univ Chicago) <i>Dynamics of morphogenesis in ascidians</i>
	Afternoon & evening labs,	<i>Ascidians, C. elegans, tardigrades</i>
6/13/26 (Sat)	Morning lecture (9:00am-11:00am Speck)	Benito-Gutierrez, Elia . (Genentech), <i>Amphioxus: The Thrilling Prologue to Vertebrate Development and Evolution; and Modularity and Heterochrony in Amphioxus: Shaping New Neural Territories in Chordate Evolution</i>
	Afternoon & evening labs	<i>Ascidians, C. elegans, tardigrades</i>
	Class presentations (9pm)	<i>Show 'n Tell 1; lab clean up</i>
6/14/26	<i>Free time</i>	

(Sun)		
Module 3: Hans Laufer Arthropod module; Arthropods, Nematostella, Spiralian (June 15-20)		
6/15/26 (Mon)	Morning lecture (9:00am-11:00am Speck)	Nipam Patel , (Univ. Chicago/MBL), <i>Embryonic patterning of Drosophila and other arthropods</i>
	Afternoon & evening labs	<i>Arthropods. Drosophila embryogenesis.</i>
6/16/26 (Tue)	Morning lecture (9:00am-11:00am Speck)	Melanie Worley , (UVA) <i>Development and regeneration of imaginal discs in Drosophila</i>
	Afternoon & evening labs	<i>Arthropods.</i>
6/17/26 (Wed)	Morning lecture (9:00am-11:00am Speck)	Todd Nystul (UCSF). <i>The Drosophila Ovary as a Model of Stem Cell Biology Within the Native in vivo Context</i> David Stern (Stowers Institute), <i>How Aphids Remote-Control Plants: Aphid effector proteins in plant gall induction</i>
	Afternoon & evening labs	<i>Arthropods</i>

6/18/26 (Thu)	Morning lecture (9:00am-11:00am Speck)	Matt Gibson (Stowers Institute), <i>Development of the Starlet Sea Anemone, Nematostella vectensis</i>
	Afternoon & evening labs	<i>Nematostella, Arthropods</i>
6/19/26 (Fri)	Morning lecture (9:00am-11:00am Speck)	Dede Lyons , (Scripps Institution of Oceanography), <i>Developmental Origins of Novelty in Molluscan Body-Plans.</i>
	Afternoon & evening labs	<i>Spiralians, Arthropods, Nematostella.</i>
6/20/26 (Sat)	Morning lecture (9:00am-11:00am Speck)	John Rubin (documentary filmmaker, https://www.imdb.com/name/nm0999530/). HHMI Tangled Bank. Viki Merrick (Atlantic Public Media), Ari Daniel Shapiro (NPR). <i>How to communicate science.</i>
	Afternoon & evening labs	<i>Spiralians, Arthropods, Nematostella.</i>
6/21/26 (Sun)		<i>Free time</i>

Module 4: Fish and Frogs (June 22 - June 27) (Please note that there will be morning and evening labs, and afternoon lectures this week)		
6/22/26 (Mon)	Morning lab (8:30am)	<i>Zebrafish orientation and Zebrafish injections</i>
	Afternoon lecture (1:00-3:00pm, Speck)	Tatjana Piotrowski , (Stowers Institute), <i>Zebrafish intro; sensory lateral line development and regeneration</i>
	Evening lab (7:30-8:30pm)	<i>Zebrafish/ frog lab intro</i>
6/23/26 (Tue)	Morning lab (9 am)	<i>Zebrafish, Frogs</i>
	Afternoon lecture (1:00-3:00pm, Speck)	John Wallingford (Univ. of Texas, Austin), <i>Beatings will continue: specification, differentiation, and evolution of ciliated cells.</i>
	Evening lab	<i>Zebrafish, Frogs</i>
6/24/26 (Wed)	Morning lab (9 am)	<i>Zebrafish, Frogs</i>
	Afternoon Lecture (1:00-3:00pm, Speck)	Marina Venero-Galanternik (University of Utah). <i>Zebrafish meningeal development</i>
	Evening lab	<i>Frogs, Zebrafish</i>
6/25/26 (Thu)	Morning lab (9 am)	<i>Frogs, Zebrafish</i>
	Afternoon lecture (1:00-3:00pm, Speck)	Andrea Wills , (Univ. Washington), <i>Regeneration and metabolism in Xenopus</i> Shinuo Weng (Johns Hopkins University), <i>May the Force Be with Frogs: From the Bottom Up</i>
	Evening lab	<i>Frogs, Zebrafish</i>
6/26/26 (Fri)	Morning lab (9 am) 10:30am	<i>Zebrafish, Frogs</i> <i>Facility tour with John Henry. Meet in G10 in basement of Loeb.</i>
	Afternoon lecture (1:00-3:00pm, Speck)	Jamie Gagnon (University of Utah). <i>A CRISPR wrinkle in time</i> Andrew Gillis , (MBL) <i>Skate development and evolution of the vertebrate skeleton</i>
	Evening lab	<i>Zebrafish, Frogs, Skates</i>
06/27/26 (Sat)	Morning lab (9 am)	<i>Zebrafish, Frogs, Skates</i>
	11am	<i>Fish room tour</i>
	Afternoon lecture 1:30pm	Denise Montell (UCSB). Katsuma and Jean Dan lecture, RACing from Drosophila border cell migration to an enhanced cancer immunotherapy
	Evening lab	<i>Zebrafish, Skates, Frogs</i>
	Class presentations 8pm	<i>Show 'n Tell 2; lab clean up</i>
06/28/26 (Sun)		<i>Whale watching trip to Hyannis</i>

Module 5: Chicks and Mouse (June 29 – July 3)		
6/29/26 (Mon)	Morning lecture (9-11am, Speck)	Tatjana Sauka-Spengler , (Stowers Institute), <i>Introduction to chick development</i>
	Afternoon & evening labs	<i>Chick</i>
6/30/26	Morning lecture (9-11am, Speck)	Olivier Pourquie (Harvard and MGH) , <i>Laying down the body plan: lessons from the embryo, and Deconstructing and reconstructing the human musculo-skeletal system in vitro with pluripotent stem cells.</i>

(Tue)	Afternoon & evening labs	<i>Chick, organoids</i>
7/1/26 (Wed)	Morning lecture (9-11am, Speck) Afternoon & evening labs	Peter Lwigale (Rice University), <i>Neural crest cells in corneal development</i> <i>Chick, organoids</i>
7/2/26 (Thu)	Morning lecture (9-11am, Speck) Afternoon & evening labs	Yuchuan Miao (Johns Hopkins U.), <i>Deciphering developmental patterning with stem cell-based embryo models</i> <i>Chick, organoids</i>
7/3/26 (Fri)	Morning lecture (9-11am, Speck) Afternoon & evening labs	Margarete Diaz Cuadros (Harvard University). <i>Mechanisms regulating the speed of development across species</i> Joel Rothman (UCSB), <i>Cryptic plasticity: direct reprogramming of cell fate and lifespan in a deterministic animal</i> <i>Chick, organoids</i>
7/4/26 (Sat)	July 4 th Parade	<i>Free time, parade. softball game. Course BBQ next to white tent at 6pm and watch fireworks on beach.</i>
7/5/26 (Sun)	free	
Module 6: Cephalopods, Cnidarians, Ctenophores, Annelids (July 6- 8)		
7/6/26 (Mon)	Morning lecture (9-11am, Speck) Afternoon evening lab	Carrie Albertin (MBL) <i>Introduction to cephalopod development</i> <i>Cephalopods</i> <i>Cephalopods, squid injections.</i>
7/7/26 (Tue)	Morning lecture (9-11am, Speck) Afternoon & evening labs	Bill Browne (Univ. Miami.), <i>Introduction to ctenophore development</i> Brady Weissbourd (MIT) <i>A genetically tractable jellyfish for systems and evolutionary neuroscience.</i> <i>Cnidarians (cephalopods)</i>
7/8/26 (Wed)	Morning lectures (9-11am, Speck) Class presentations, (8pm)	Ehab Abouheif (Zhejiang University, China). The journey from MBL to establishing a new field of eco-evo-devo medicine. <i>Show 'n Tell 3</i>
7/9/26 (Thu)	Morning discussion (11am) Afternoon Evening (7:30pm)	Athula Wikramanayake , (Univ. Miami) and Tatjana Piotrowski (Stowers Institute) <i>Lab clean-up</i> <i>Course banquet and award ceremony</i>
7/10/26 (Fri)	Before 10:00am	<i>Departure</i>