

2020 ZEBRAFISH GENETICS AND DEVELOPMENT COURSE SCHEDULE

Mon 3 Aug

- 2:00 – 5:00 Student check-in (Swope)
- 6:00 – 6:30 Light dinner – cold cuts & veggies (Lobby of Candle House 104/5)
- 6:30 – 6:45 Welcome: Sharon Amacher and Debbie Yelon (Candle House 104/5)
- 6:45 – 7:45 Overview: Zebrafish development and genetics: Lila Solnica-Krezel (Candle House 104/5)
- 7:45 – 9:30 Student 3-min oral presentations (Candle House 104/5)
- 9:30 – 10:00 Set up posters and locate individual student stations in lab (Loeb 160)

Tues 4 Aug

- 8:30 – 9:15 Introduction to stereoscopes, iPad/camera and server setup: Dave Raible & faculty (Loeb 160)
- 9:15 – noon Pit Talk and Lab: Zebrafish development (temporal dynamics, tissue organization, early embryo anatomy): Lila Solnica-Krezel, Dave Raible (Loeb 160)
- Noon – 1:30 Faculty (Lila Solnica-Krezel and Dave Raible) lunch with students (Swope)
- 1:30 – 1:45 Check nocodazole-treated embryos from morning session
- 1:45 – 6:00 Adult dissection and Regeneration lab (fin and heart): Ken Poss (Loeb 160)
- 7:30 – 9:00 Research Lectures and Discussion: Ken Poss and David Raible (Starr 209) followed by reception in Loeb 156
- 9:00 – 9:30 Check SB-treated embryos with Lila; individual wrap-up with interested students
- 9:30 – 11:30 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 1)
- 9:30 – 11:30 Overnight time-lapse microscopy: Jan Huisken (Group 4)
- 9:30 – 11:00 Poster Perusal: Groups 2 & 3 (Loeb Hallways or Alternate Space)

Wed 5 Aug

- 9:00 – 10:00 Orientation, Health and Safety and Biosafety, IACUC Training (Meigs Room, Swope)
- 10:00 – 11:00 Lecture: Introduction to Microscopy: Andres Collazo (Loeb 160)
- 11:00 – noon Hands-on microscopy – fluorescent dissecting scopes: Andres Collazo, Dave Raible, Jim Fadool, Debbie Yelon (Loeb 160)
- Noon – 1:30 Faculty (Ken Poss and Jan Huisken) lunch with students (Swope)
- 1:30 – 3:00 Hands-on microscopy – compound scopes: Andres Collazo, Dave Raible, Jim Fadool, Debbie Yelon (Loeb 160)
- 3:00 – 4:00 Student groups write-up customized protocols for their scopes
- 4:00 – 6:00 Lecture and Discussion: Light Sheet Microscopy: Jan Huisken (Starr 209)
- 7:30 – 9:00 Research Lectures & Discussion: Lila Solnica-Krezel and Antonio Giraldez (Starr 209) followed by reception in Loeb 156
- 9:00 – 11:00 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 2)
- 9:00 – 11:00 Overnight time-lapse microscopy: Jan Huisken (Group 3)
- 9:00 – 11:00 Poster Perusal: Groups 1 & 4 (Loeb Hallways or Alternate Space)

Thurs 6 Aug

- 8:30 – 12:00 Pit Talk and Lab: mRNA and CRISPR injections: Andi Pauli and Becky Burdine (Loeb 160)
- Noon – 1:00 Faculty (Mary Mullins and Antonio Giraldez) lunch with students (Swope)
- 1:00 – 1:30 Needle pulling demo: Adair Oesterle (Sutter Instruments) (Loeb 160)
- 1:30 – 2:30 Developmental Genetics review: Mary Mullins (Starr 209)
- 2:30 – 3:30 Round Table: Morpholino use: Mary Mullins, Sharon Amacher, Andi Pauli (Starr 209)
- 3:30 – 6:00 Zebrafish genome literacy workshop: Elisabeth Busch-Nentwich (Starr 209)
- 7:30 – 9:00 Chi-Bin Chien Memorial Research Lecture: David Prober (Speck Auditorium, Rowe) followed by reception in Loeb 156
- 9:00 – 9:30 Wrap-up mRNA injected embryos: Andi Pauli and Becky Burdine (Loeb 160)
- 9:30 – 11:30 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 3)
- 9:30 – 11:30 Overnight time-lapse microscopy: Jan Huisken (Group 1)
- 9:30 – 11:00 Poster Perusal: Groups 2 & 4 (Loeb Hallways or Alternate Space)
- 9:30 - ??? Finalize t-shirt design

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Fri 7 Aug

- 8:30 – noon Pit Talk and Lab: Morpholino and CRISPR injections: Andi Pauli and Becky Burdine (Loeb 160)
- Noon – 1:00 Faculty (David Prober and Andres Collazo) lunch with students (Swope)
- 1:00 – 3:00 Lab: Larval anatomy: Tom Schilling
- 3:00 – 6:00 CRISPR design workshop: Antonio Giraldez (Starr 209)
- 7:00 – 7:45 Research Lecture and Discussion: Corinne Houart (Starr 209)
- 8:00 – 9:00 MBL Friday Evening Lecture (presumed)
- 9:00 – 9:30 Check injected embryos from the AM: Andi Pauli and Becky Burdine (Loeb 160)
- 9:30 – 11:30 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 4)
- 9:30 – 11:30 Overnight time-lapse microscopy: Jan Huisken (Group 2)
- 9:30 – 11:00 Poster Perusal: Groups 1 & 3 (Loeb Hallways or Alternate Space)

Sat 8 Aug

- 8:30 – 9:30 Introduction to ZFIN, atlases, and web resources: Corinne Houart and Sharon Amacher (Loeb 160 or Starr 209 or G70?)
- 9:30 – 10:00 Pit Talk: Immunostaining & in situ hybridization: Corinne Houart and Sharon Amacher (Loeb 160)
- 10:00 – Noon Mounting, analysis, and imaging of fixed embryos: Corinne Houart and Sharon Amacher (Loeb 160)
- Noon – 1:30 Faculty lunch (Andi Pauli and Becky Burdine) with students (Swope)
- 1:30 – 4:30 Lab: Continuation from morning and make presentations of immunostaining and in situ hybridization images (Loeb 160)
- 4:30 – 6:00 Research Lectures and Discussion: Mary Mullins and Elisabeth Busch-Nentwich (Starr 209)
- 7:30 – 10:00 Faculty & Staff Event; Student self-organized social time (Starr 209)
- 10:00 – 10:30 Check injected embryos from Friday's injection module for germline phenotype

Sun 9 Aug

- 9:00 – 10:00 Round Table: Responsible Conduct in Research (and coffee and donuts): Amacher and Yelon (Starr 209)
- 10:00 – 12:00 Immunostaining & in situ hybridization wrap-up: student presentations with Corinne Houart and Sharon Amacher (Starr 209)
- Noon – 1:00 Faculty lunch (Elisabeth Busch-Nentwich and Corinne Houart) with students (Swope)
- 1:00 – 3:00 Check on regenerating fins (Poss and Yelon)
- 3:00 – 5:00 Free Time (*Faculty meeting held for 1 hour during this time*)
- 5:00 – 6:00 Student/Faculty Challenge (Scavenger Hunt)
- 6:30 – 9:00 Course BBQ (courtyard between Loeb/Rowe/Starr)

Mon 10 Aug

- 8:30 – 9:00 Check CRISPR injected embryos for pigmentation (and other) phenotypes (Loeb 160)
- 9:00 - 9:45 Research Lecture and Discussion: Debbie Yelon (Starr 209, G70?)
- 9:45 – 10:45 Round Table: Transgenesis: Sarah Kucenas (Starr 209, G70?)
- 10:45 – noon Pit Talk: Chimeric Analysis: Sharon Amacher and Jim Fadool (Loeb 160)
- Noon – 1:00 Faculty lunch (Alex Schier and Tom Schilling) with students (Swope)
- 1:00 – 6:00 Chimeric analysis Lab: Blastula transplants: Sharon Amacher, Jim Fadool, Andres Collazo, and Tom Schilling (Loeb 160)
- 7:30 – 9:00 Research Lectures and Discussion: Alex Schier and Andi Pauli (Starr 209)
- 9:00 – 11:00 Optional overnight time-lapse microscopy of transplants (on your own)

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Tues 11 Aug

- 9:00 – noon Imaging transplants (Sharon Amacher, Tom Schilling, Jim Fadool, Andres Collazo)
Noon – 2:00 Facility visit and Lunch: Aquatic Systems: Sharon Amacher, Debbie Yelon, & suppliers (meet in courtyard; travel to Rowe; back to courtyard for pizza lunch with vendors)
2:00 – 4:00 Lecture and Discussion: Husbandry, breeding and raising fry: April Freeman (Starr 209)
4:00 – 6:00 Wrap up chimeric analysis: Sharon Amacher, Jim Fadool, Andres Collazo, and Tom Schilling: Transplant show and tell by group (Starr 209)
7:30 – 9:00 Research Lectures and Discussion: Becky Burdine and Tom Schilling (Starr 209)
10:00 Stony Beach evening quiet field trip to see bioluminescence

Wed 12 Aug

- 9:00 - 9:45 Research Lecture and Discussion: Anna Huttenlocher (Starr 209, G70?)
9:45 – 10:45 Round Table: Disease models: Anna Huttenlocher and faculty (Starr 209, G70?)
10:45 – 12:00 Pit Talk: Imaging + Quantification of cell signaling *in vivo*: Anna Huttenlocher (Loeb 160)
Noon – 1:30 Faculty lunch (Debbie Yelon and Sharon Amacher) with students (Swope)
1:30 – 6:00 Lab: Imaging + Quantification of cell signaling *in vivo*: Anna Huttenlocher (Loeb 160)
7:30 – 9:00 Research Lectures and Discussion: Clare Buckley and Jim Fadool (Starr 209)
9:00 – 11:00 Fin regeneration results and terminal imaging: Poss and Yelon (Loeb 160)

Thurs 13 Aug

- 9:00 – 10:00 Pit Talk: Optical Manipulation: Clare Buckley, Sarah Kucenas, and Debbie Yelon (Loeb 160)
10:00 – noon Lab Rotations: Photoconversion: Yelon, Protein mis-localization: Buckley, Ablation/Axotomy: Kucenas (Loeb 160)
Noon – 1:30 Faculty (Clare Buckley and Anna Huttenlocher) lunch with students (Swope)
1:30 – 4:30 Lab Rotations, continued: Photoconversion: Yelon, Protein mis-localization: Buckley, Ablation/Axotomy: Kucenas (Loeb 160)
4:30 – 6:00 Wrap-up of Imaging/Quantification: Anna Huttenlocher (Loeb G70 or Starr 209)
7:30 – 9:00 Research Lectures and Discussion: Sarah Kucenas and David Schoppik (Starr 209) followed by reception in Loeb 156

Fri 14 Aug

- 9:00 – noon Pit Talk and Lab: In vitro fertilization (IVF) Sharon Amacher (Loeb 160)
Noon – 1:30 Faculty lunch (David Schoppik and Sarah Kucenas) with students (Swope)
1:30 – 3:30 MRC tours
3:30 – 4:30 Begin working on photo contest submissions and 5-minute student presentations of favorite data
4:30 – 6:00 Round Table: Zebrafish in Education: Roshan Jain, Dave Daggett, and Sharon Amacher (Starr 209)
6:00 – 7:30 Faculty (Roshan Jain, Dave Daggett) dinner with students (Swope)
7:30 – 9:00 Research Lectures and Discussion: Sharon Amacher and Michael Granato (Starr 209)
9:00 – 9:30 IVF wrap-up (plus look again in the morning; Loeb 160)
9:30 – 11:00 Reception in Loeb 156

Sat 15 Aug

- 9:00 – 10:00 Pit Talk: Behavior: Michael Granato, Jim Fadool, and David Schoppik (Loeb 160)
10:00 – noon Lab: Behavior: Granato, Fadool and Dowling, and Schoppik (Loeb 160)
Noon – 1:00 Faculty (Jim Fadool and John Dowling) lunch with students (Swope)
1:00 – 5:00 Lab, continued: Behavior: Granato, Fadool and Dowling, and Schoppik (Loeb 160)
5:00 – 6:00 Continue working on photo contest submissions and 5-minute student presentations of favorite data
7:30 – 9:30 Cardiac regeneration results and terminal imaging: Poss and Yelon (Loeb 160)

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9:30 – 11:00 Finish up photo contest submissions and 5-minute student presentations of favorite data
11:00 Photo contest images (individual & group entries) due by 11 pm.

Sun 16 Aug

9:00 – noon Falmouth Road Race and/or finalize preparation of 5-min presentations AND clean-up stations/return materials/download everything you want from the server
Noon – 1:30 Faculty (Michael Granato) lunch with students (Swope)
1:30 – 3:30 Five-minute student presentations of favorite piece of data (Starr 209)
3:30 – 5:00 Course Wrap-up discussion with Amacher and Yelon (Loeb Courtyard/Starr 209)
5:00 – 5:15 Course photo #1; wear course t-shirt (Loeb Courtyard/Starr Loeb 160)
6:00 – 10:00 Course Dinner and Student Awards with Course Photo #2 at 6:30 pm (Swope Patio),

Mon 17 Aug

Breakfast, room checkout and departure