

## 2018 ZEBRAFISH GENETICS AND DEVELOPMENT COURSE SCHEDULE

### Sat 4 Aug

2:00 – 6:00 Student check-in  
6:00 – 6:30 Light dinner – cold cuts & veggies (Loeb G70)  
6:30 – 6:45 Welcome: Sharon Amacher and Debbie Yelon (Loeb G70)  
6:45 – 7:45 Overview: Zebrafish development and genetics: Lila Solnica-Krezel (Loeb G70)  
7:45 – 9:30 Student 3-min oral and poster presentations (Loeb G70)

### Sun 5 Aug

8:30 – 12:00 Pit Talk and Lab: Zebrafish development (temporal dynamics and tissue organization): Lila Solnica-Krezel, Dave Raible (Loeb 160)  
1:00 – 1:45 Introduction to stereoscopes and iPad/camera setup: Dave Raible and faculty (Loeb 160)  
1:45 – 6:00 Adult dissection and Regeneration lab (fin and heart): Ken Poss (Loeb 160)  
7:30 – 9:00 Research Lectures and Discussion: Alex Schier and Dave Raible (Starr 209)  
9:00 – 10:00 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 1)

### Mon 6 Aug

8:45 – 9:30 Orientation, Health and Safety, IACUC Training (Loeb 160)  
9:30 – noon Pit Talk and Lab: In vitro fertilization (IVF) Sharon Amacher (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:00 – 3:30 Adult tissue dissection and collection for RNA-seq: Ken Poss (Loeb 160)  
3:30 – 4:30 Lecture: Introduction to Microscopy: Andres Collazo (Loeb 160)  
4:30 – 5:30 Hands-on microscopes & imaging: Andres Collazo, Dave Raible, Jim Fadool, Corinne Houart (Loeb 160)  
7:00 – 7:30 Needle pulling demo: Adair Oesterle (Sutter Instruments) (Loeb 160)  
7:30 – 9:00 Research Lectures & Discussion: Lila Solnica-Krezel and Ken Poss (Starr 209)  
9:00 – 10:00 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 2)

### Tues 7 Aug

8:30 – 11:30 Pit Talk and Lab: mRNA and CRISPR injections: Mary Mullins (Loeb 160)  
11:30 – 12:00 IVF observation and wrap-up: Sharon Amacher (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:00 – 2:00 Developmental Genetics review: Mary Mullins (Starr 209)  
2:00 – 3:00 Round Table: Morpholino use: Mary Mullins, Sharon Amacher (Starr 209)  
3:00 – 5:00 CRISPR design workshop: Antonio Giraldez (Starr 209)  
5:00 – 6:00 Round Table: Genome Editing: Giraldez, Houart, Amacher (Starr 209)  
7:30 – 9:00 Research Lectures and Discussion: Mary Mullins and Tom Schilling (Starr 209)  
9:00 – 10:30 Wrap-up mRNA injected embryos: Mary Mullins (Loeb 160)  
10:30 Stony Beach evening field trip

### Wed 8 Aug

8:30 – 11:45 Pit Talk and Lab: Morpholino and CRISPR injections: Mary Mullins (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:00 – 6:00 Pit Talk and Lab: Quantitative morphometrics: Tom Schilling (Loeb 160)  
7:30 – 9:00 Research Lectures and Discussion: Sharon Amacher and Andi Pauli (Starr 209)  
9:00 – 9:45 Check injected embryos from the AM: Mary Mullins (Loeb 160)  
9:45 – 10:45 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 3)

### Thur 9 Aug

8:30 – 9:30 Introduction to ZFIN, atlases, and web resources: Houart and Amacher (Loeb 160)  
9:30 – 10:00 Pit Talk: Immunostaining & in situ hybridization: Houart and Amacher (Loeb 160)  
10:00 – 12:00 Mounting, analysis, and imaging of fixed embryos: Houart and Amacher (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:00 – 5:00 Lab: Continuation from morning (Loeb 160)  
5:00 – 6:00 Make presentations of immunostaining and in situ hybridization images (Loeb 160)  
7:30 – 8:15 Wrap-up: student presentations with Corinne Houart and Sharon Amacher (Starr 209)  
8:15 – 9:00 Research Lecture and Discussion: Anna Huttenlocher (Starr 209)  
9:00 – 10:00 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool (Group 4)

**Meal times at Swope:** Breakfast: 7:00 – 8:30    Lunch: 11:30 – 1:00    Dinner: 5:00-7:00

## 2018 ZEBRAFISH GENETICS AND DEVELOPMENT COURSE SCHEDULE

### Fri 10 Aug

- 9:00 – 9:30 Check CRISPR injected embryos for pigmentation (and other) phenotypes (Loeb 160)  
9:30 – 11:00 Round Table: Disease models: Anna Huttenlocher, Kirsten Sadler-Edepli, Jeff Gross (Starr 209)  
11:00 – 12:00 Pit Talk: Imaging + Quantification of cell signaling *in vivo*: Anna Huttenlocher (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:30 – 5:30 Lab: Imaging + Quantification of cellular signaling *in vivo*: Anna Huttenlocher (Loeb 160)  
8:00 – 9:30 MBL Porter Lecture – John Gurdon on The Stability and Reversal of Cell Differentiation in Development  
9:30 – 10:30 Wrap-up of Imaging/Quantification: Anna Huttenlocher (Loeb G70)  
10:30 – 11:30 Check on regenerating fins: Poss and Yelon (Loeb 160)

### Sat 11 Aug

- 9:00 – 10:30 Research Lectures and Discussion: Debbie Yelon and Corinne Houart (Starr 209)  
10:30 – 11:45 Pit Talk: Chimeric Analysis: Sharon Amacher and Michael Granato (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:00 – 6:00 Chimeric analysis Lab: Blastula transplants: Michael Granato, Jim Fadool, & Andres Collazo and early gastrula transplants: Sharon Amacher (Loeb 160)  
7:30 – 9:00 Faculty & Staff Event; Student Movie Night (Starr 209)  
10:00 – 11:00 Optional overnight time-lapse microscopy: Andres Collazo and Jim Fadool (select transplants)

### Sun 12 Aug

- 9:00 – 11:30 Pit Talk and Lab: “High-resolution” transplants, imaging early transplants: Houart, Amacher (Loeb 160)  
11:30 – 12:15 Guest Research Lecture and Discussion: José Luis Gómez-Skarmeta  
1:30 – 2:30 Continuation of the morning lab  
2:30 – 4:30 Free Time (*Faculty meeting held for 1 hour during this time*)  
4:30 – 6:00 Student/Faculty Challenge (Scavenger Hunt)  
6:30 – 9:00 Course BBQ (courtyard between Loeb/Rowe/Starr)

### Mon 13 Aug

- 9:00 – 10:00 Wrap up chimeric analysis: Sharon Amacher, Jim Fadool, Michael Granato (Loeb 160)  
10:00 – 11:15 Wrap up late transplants: Sharon Amacher, Corinne Houart (Loeb 160)  
11:15 – 12:00 Research Lecture and Discussion: Kirsten Sadler-Edepli (Starr 209)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:30 – 5:00 Imaging data and analyzing pending experiments, including terminal imaging of regenerating fins (Loeb 160)  
5:00 – 6:00 Round Table: Responsible Conduct in Research: Amacher and Yelon (Starr 209)  
7:30 – 9:00 Research Lectures and Discussion: Antonio Giraldez and Marc Wolman (Starr 209)

### Tues 14 Aug

- 9:00 – 10:30 Facility visit: Aquatic Systems: Sharon Amacher, Debbie Yelon, & suppliers (Starr 209)  
10:30 – 12:00 Lecture and Discussion: Husbandry, breeding and raising fry: April Freeman (Starr 209)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:30 – 2:30 Pit Talk: Functional genomics, epigenomics and resources: Antonio Giraldez (Starr 209)  
2:30 – 6:00 Bioinformatics Lab – RNA-seq analysis: Antonio Giraldez (Starr 209)  
7:30 – 9:00 Research Lectures and Discussion: Steve Farber and Clare Buckley (Starr 209)

### Wed 15 Aug

- 8:30 - 9:00 Pit Talk: Photoconversion and optogenetics: Yelon and Buckley (Loeb 160)  
9:00-12:00 Rotations/Demonstrations: Photoconversion: Yelon, Protein mis-localization: Buckley, Lipid metabolism, part one: Farber (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:30 – 2:30 Pit Talk: Imaging metabolism and subcellular structures: Sadler-Edepli, Farber, and Yelon (Loeb 160)

**Meal times at Swope:** Breakfast: 7:00 – 8:30    Lunch: 11:30 – 1:00    Dinner: 5:00-7:00

## 2018 ZEBRAFISH GENETICS AND DEVELOPMENT COURSE SCHEDULE

- 2:30 – 5:00 Rotations/Demonstrations: Subcellular structures: Sadler-Edepli; Lipid metabolism: Farber; Cardiac conduction: Yelon (Loeb 160)  
5:00 – 6:00 Behavior Round Table: Marc Wolman and others (Starr 209)  
7:30 – 9:00 Research Lectures and Discussion: Michael Granato and Jim Fadool (Starr 209)

### **Thur 16 Aug**

- 9:00 – 9:30 Pit Talk: Behaviors: Michael Granato, Jim Fadool, Claire Wyart (Loeb 160)  
9:30 – 12:30 Lab: Motor, visual, social behaviors: Granato, Fadool, Wyart (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:30 – 3:30 Lab: continuation: Behaviors: Granato, Fadool, Wyart (Loeb 160)  
3:30 – 5:00 Round Table: Zebrafish in Education: Kara Cerveney, Steve Farber, Dave Daggett (Starr 209)  
5:00 – 5:45 Research Lecture and Discussion: Claire Wyart (Starr 209)  
7:30 – 9:00 Chi-Bin Chien Research Lecture: Miguel Concha (Starr 209)

### **Fri 17 Aug**

- 9:00 – 12:00 Regeneration results (heart) and imaging: Poss and Yelon (Loeb 160)  
noon – 1:00 Faculty lunch with students (sign-up ahead of time) Swope  
1:00 – 2:00 Preparation of 5-min presentations (Starr 209)  
2:00 – 3:30 Five-minute student presentations of favorite piece of data (Starr 209)  
4:00 – 5:00 Course Wrap-up discussion with Amacher and Yelon (Starr 209)  
6:00 – 11:00 Course Dinner and Student Awards (space TBD)

### **Sat 18 Aug**

Breakfast, room checkout and departure