

## 2017 ZEBRAFISH GENETICS AND DEVELOPMENT COURSE SCHEDULE

### Fri 4 Aug

- 16:00 – 16:20 Welcome: Erez Raz, Sharon Amacher and Corinne Houart (Loeb G70)  
16:20 – 17:10 Orientation, Health and Safety, IACUC Training (Loeb 160)
- 18:00 – 19:00 Overview: Zebrafish development and genetics: Lila Solnica-Krezel (Loeb G70)  
19:00 – 19:45 Light dinner – cold cuts & veggies (Loeb G70)  
19:45 – 21:30 Students 3-min presentations and student posters viewing (Loeb G70)

### Sat 5 Aug

- 08:30 – 12:00 Pit Talk and Lab: Zebrafish development (temporal dynamics and tissue organization):  
Lila Solnica-Krezel, Dave Raible (Loeb 160)
- 13:00 – 13:30 Introduction to stereoscopes: Dave Raible (Loeb 160)  
13:30 – 14:30 Pit Talk: Functional genomics, epigenomic and resources: Antonio Giraldez (Starr 209)  
14:30 – 18:00 Bioinformatics Lab, genomic resources – case studies: Antonio Giraldez (Starr 209)  
19:30 – 20:15 Research Lectures and Discussion: Sharon Amacher (Loeb G70)  
20:30 – 22:00 Overnight time-lapse microscopy: Andres Collazo and Jim Fadool

### Sun 6 Aug

- 09:00 – 11:30 Pit Talk and Lab: IVF: Sharon Amacher (Loeb 160)  
13:00 – 14:00 Lecture: Introduction to Microscopy: Andres Collazo (Loeb 160)  
14:00 – 16:30 Hands-on microscopes & imaging: Andres Collazo, Dave Raible, Jim Fadool, Sharon Amacher, Corinne Houart (Loeb 160)  
16:30 – 17:20 Review Lecture: Developmental Genetics: Mary Mullins (Starr 209)  
17:30 – 18:15 Needle pulling demo: Adair Osterle and IVF results: Sharon Amacher (Loeb 160)  
19:30 – 21:00 Research Lectures & Discussion: Alex Schier and Lila Solnica-Krezel (Starr 209)  
21:00 – 22:00 Lab: Overnight time-lapse microscopy: Andres Collazo and Jim Fadool

### Mon 7 Aug

- 08:30 – 11:30 Pit talk and lab: mRNA/morpholino injections, mutant rescue: Mary Mullins (Loeb 160)  
11:30 – 12:00 Follow-up observation of IVF results: Amacher (Loeb 160)  
13:00 – 17:30 Adult dissections and Regeneration practical (fin and heart): Ken Poss (Loeb 160)  
19:30 – 21:00 Research lectures: Mary Mullins and Jon Clarke  
21:00 - 22:30 Wrap-up mRNA, mutant rescue and MOs: Mary Mullins. (Loeb 160)

### Tue 08 Aug

- 08:30 – 09:00 Pit Talk: TALENS, CRISPR injections: Mary Mullins (Loeb 160)  
09:00 – 11:45 Morpholino/TALENS/CRISPR injection (students can use their own): Mullins (Loeb 160)  
13:00 - 14:00 Round table - Morpholino limitations Mary Mullins, Erez Raz, Sharon Amacher  
14:00 - 18:00 Pit Talk + lab: Optogenetics - protein mis-localisation in vivo: Jon Clarke (Loeb 160)  
19:00 – 20:00 Round Table: Genome Editing: Antonio Giraldez, S Amacher, C Houart (Starr 209)  
20:00 – 21:30 Research Lecture Antonio Giraldez and Ken Poss (Starr 209)  
21:30 – 22:30 Overnight time-lapse microscopy set up with Andres Collazo & Jim Fadool

**Meal times at Swope:** Breakfast: 07:00-08:30 Lunch: 11:30-13:00 Dinner: 17:00-19:00

### Wed 09 Aug

- 08:30 – 09:00 Pit Talk: Immunostaining & in situ hybridization: Houart and Amacher (Loeb 160)
- 09:00 – 12:00 Mounting, analysis, and imaging of fixed embryos: Houart and Amacher. (Loeb 160)
- 13:00 – 14:30 Lab: Continuation from morning (Loeb 160)
- 14:30 – 15:00 Short lecture: How to present data (Erez Raz)
- 15:00 – 16:00 Making presentations of immunostaining and in situ hybridization data (Loeb 160)
- 16:00 – 17:30 Wrap-up: student presentations with Corinne Houart and Sharon Amacher (Starr 209)
- 17:30 – 18:00 Check CRISPR/TALEN injected embryos for phenotypes (Loeb 160)
- 19:30 – 21:00 Research Lecture and Discussion: Marcos Gonzalez-Gaitan and Erez Raz (Starr 209)
- 21:00 – 22:00 Lab: Overnight time-lapse microscopy set up with Andres Collazo & Jim Fadool

### Thu 10 Aug

- 09:00 – 10:00 Pit talk: Imaging + Quantification of cell signaling *in vivo*: Anna Huttenlocher (Loeb G70)
- 10:00 – 12:00 Round table: Disease models: Anna Huttenlocher (Loeb G70)
- 13:30 – 17:30 Lab: Imaging + quantification of cellular signaling *in vivo*: Anna Huttenlocher (Loeb 160)
- 17:30 – 18:00 Score the varied CRISPR embryos, discuss data and issues: Amacher/Houart (Loeb 160)
- 19:30 – 21:00 Research Lectures: Corinne Houart & Anna Huttenlocher (Loeb G70)
- 21:00 – 22:00 Wrap-up Imaging/Quantification of response to infection: Anna Huttenlocher (Loeb G70)

### Fri 11 Aug

- 09:00 – 09:45 Round table: Using the zebrafish for its strengths: Erez Raz
- 09:45 – 10:30 Facility visit: Aquatic Systems: Erez Raz & suppliers (Loeb G70)
- 10:30 – 12:00 Round Table: Husbandry, building a facility, breeding and raising fry (Loeb G70)
- 13:00 – 13:45 Pit Talk: Biophysics and quantitative biology: Marcos Gonzalez Gaitan (Loeb 108)
- 13:45 – 18:00 Lab: Quantitative biophysics Marcos Gonzalez Gaitan (Loeb 108)
- 19:00 - 21:00 MBL Friday Lecture

### Sat 12 Aug

- 09:00 – 10:00 Round Table Discussion: Transgenesis: Dave Raible (Loeb G70)
- 10:15 – 11:45 Pit Talk: Chimeric Analysis: Cecilia Moens and Michael Granato (Loeb 160)
- 13:00 – 18:00 Lab: Chimeric analysis. Blastula transplants: Michael Granato, Jim Fadool, and Andres Collazo. Germ Cell/early gastrula transplants: Cecilia Moens. (Loeb 160)
- 19:30 – 21:00 Research Lectures: Marcos Gonzalez Gaitan and Cecilia Moens (Loeb G70)
- 21:30 – 22:15 Overnight time-lapse microscopy set up with Andres Collazo & Jim Fadool

### Sun 13 Aug

Breakfast on your own.

- 09:00 – 12:00 Pit Talk + lab: “High-res” transplants + pictures of early transplants: Houart (Loeb 160)
- 13:00 – 14:00 Continuation of the morning lab
- 14:00 – 16:30 Free Time
- 16:30 – 18:00 Student Faculty soccer challenge (nearby soccer fields)
- 18:30 – 21:00 Course BBQ (courtyard between Loeb/Rowe/Starr)

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**Mon 14 Aug**

- 09:00 – 10:00 Wrap-up chimeric analysis: Cecilia Moens, Jim Fadool, Michael Granato (Loeb 160)  
10:00 – 11:00 Wrap up of late transplants: Cecilia Moens and Corinne Houart  
13:30 – 18:00 Imaging data and analyses of pending experiments (Loeb 160)  
19:30 – 21:00 Research Lecture and Discussion: Dave Raible and Debbie Yelon (Loeb G70)

**Tue 15 Aug**

- 09:00 – 09:30 Pit Talk: Behaviors: Michael Granato, Jim Fadool, and Elena Dreosti (Loeb 160)  
09:30 – 12:30 Lab: Motor, visual, social behaviors: Granato, Fadool, and Dreosti (Loeb 160)  
13:30 – 15:00 Lab: continuation: Behaviors: Granato, Fadool, Dreosti (Loeb 160)  
15:00 - 16:00 Round table: Zebrafish in Education: Kara Cerveny and Steve Farber  
16:00 – 17:00 Hands-on atlas session: Corinne Houart and Steve Wilson (Loeb G70)  
19:30 – 21:00 Research Lecture and Discussion: Jim Fadool and Steve Farber (Loeb G70)

**Wed 16 Aug**

- 09:00 - 10:00 Round Table - Responsible Conduct in Research: Erez Raz, Houart (Loeb G70)  
10:00 – 12:00 Pit talks Molecular imaging (Raible, Yelon) Imaging metabolism (Farber)  
13:30 – 18:00 Demonstrations: imaging subcellular structures: Dave Raible & Debbie Yelon; Lipid metabolism, visualisation and quantification of metabolism: Steve Farber (Loeb 160)  
19:30 – 21:00 Research Lectures and Discussion: Michael Granato, Elena Dreosti (Loeb G70)

**Thu 17 Aug**

- 09:00 – 10:30 Regeneration results and imaging. (Loeb 160)  
11:00 – 12:00 Research lecture: Steve Wilson  
13:00 – 14:00 Preparation of 5-min presentations  
14:00 – 15:30 Five-minute student presentations of their favorite piece of data (Loeb G70)  
16:00 – 17:00 Course Wrap-up: Amacher, Houart, Raz discussion with the students (Loeb G70)  
19:00 – 23:00 Student Award night!

**Fri 18 Aug**

20<sup>th</sup> Anniversary Symposium (Program [link](#))

**Sat 19 Aug**

Breakfast, room checkout and departure

**Meal times at Swope:** Breakfast: 07:00-08:30 Lunch: 11:30-13:00 Dinner: 17:00-19:00