

Inside the Cell: Immersion into the Biology Laboratory Summer 2017

In order to generate knowledge in biology, we need to understand the techniques that create information in addition to comprehending the work that has been done previously. Therefore, in addition to learning laboratory techniques, we will learn to review primary scientific literature. Every day will be a combination of multiple laboratory and classroom sessions that will help develop students' overall scientific abilities.

The first week of the course will predominantly be spent introducing students to a wide array of techniques. During the second week, students will utilize these techniques to pursue scientific questions of their own design. The program will end with students presenting their work at a research symposium open to friends and family.

Daily Program Schedule*

Day 1: Monday, July 17

Morning- Lab: Bacterial Culture
 Class: Scientific Measurement and the Molecules of Life
Afternoon- Class: Introduction to primary research literature
 Lab: DNA extraction and Polymerase Chain Reaction

Day 2: Tuesday, July 18

Morning- Lab: Agarose Gel Electrophoresis
 Class: Gene Expression and Cloning
Afternoon- Lab: Mammalian Tissue Culture
 Class: Begin to go over primary paper

Day 3: Wednesday, July 19

Morning- Lab: Transfection
 Class: Primer Design
Afternoon- Lab: Protein extraction and Polyacrylamide Gel Electrophoresis

Day 4: Thursday, July 20

Morning- Lab: RNA extraction and reverse transcription
Afternoon- Lab: PCR and Fluorescence Microscopy

Day 5: Friday, July 21

Morning- Lab: Western Blotting
Afternoon- Experimental Design for Group Projects

Saturday, July 22 – Sunday, July 23: Weekend Activities TBA

Day 6: Monday, July 24

All day- Group Cloning Projects Begin / Scientific Paper Review

Day 7: Tuesday, July 25

All day- Laboratory work / Scientific Paper Review

Day 8: Wednesday, July 26

Morning- Journal Club

Afternoon- Laboratory Work

Day 9: Thursday, July 27

All day- Laboratory Work / Presentation Prep

Day 10: Friday, July 28

Morning- Final Data Acquisition / Presentation Prep

Afternoon- Research Symposium

**Please note that the schedule details are subject to change.*