Regenerative Biology: A History, Techniques, and Recent Breakthroughs
June 30th – August 11th, 2018
Instructors: Rainbow Yeung (laanyeung@college.harvard.edu, thestudentscientist.org)
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Prerequisite: High-school biology
Preferred pre-requisite: High-school chemistry, AP biology or equivalent

Description: From birth, we are defined by the cells and their functions in our body. Stem cells, in particular, have become a hot topic in contemporary medicine research as we realize their potential and important roles in our body. This course will introduce a brief history of what a stem cell is, the techniques researchers used (and in what context), and the relating & resulting therapeutics.

Week 1: June 30th
Introduction. On stem-cell based diseases & applications, a brief history, and what the definition of a stem cell is.

Week 2: July 7th
Formal Definitions. On types of stem cells, potencies of a cell, and how that affects development.

Week 3: July 14th
Stem Cell Diseases. On developmental and regenerative diseases, including cyclopia, progeria, and cancers.

Week 4: July 21st
Research Techniques I. On techniques like cre/lox and tet for “knocking out” certain traits in an experiment and what they do.

Week 5: July 28th
Research Techniques II. On instructors’ experiences and how it is like to work in a stem cell lab. Potential guest lecturer from the Harvard Stem Cell Institute.

Week 6: August 4th
Current Breakthroughs. On contemporary research scientists are conducting in the field around the globe.

Week 7: August 11th
Group Presentations (MinuteStemCell videos) & final conclusions. Opportunities to get involved looking forward.