

# This is How We Do It: From Sex Evolution to Sex Education

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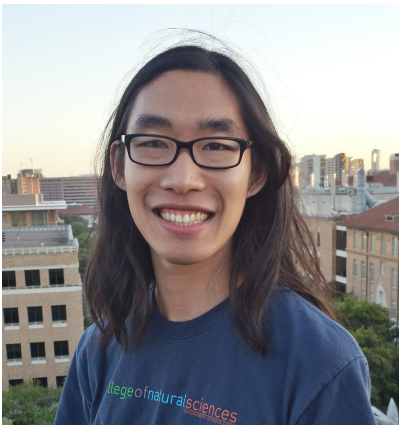


## ***Introduction:***

At first glance, it seems like we all know what sex is. But there are many scientific subtleties to sex. In this lecture we will begin by providing an evolutionary context for sex, probing why sex drive is so strong and important, and finally we will address how human society views sex and how we educate our students about it.

We will define sex from scientific and evolutionary viewpoints. Then we will provide data that address the questions of why we have sex, how is sex different between diverse organisms, how scientists and educators interact to provide sex education, and what approaches to sex education seem to be the most scientifically effective.

## ***Speakers***



**Michael Miyagi** is a PhD student in Harvard's department of Organismic and Evolutionary Biology. He works in the field of population genetics, specifically on developing methods for inferring population structure and evolutionary history. He first became interested in the evolution of sex chromosomes as an undergraduate in the group of Dr. Mark Kirkpatrick at UT Austin.



**Malinda J. McPherson** is a PhD student in the Harvard/MIT Program for Speech and Hearing Bioscience and Technology, where she studies pitch perception in speech and music. When not in the lab, she teaches the 8th grade level our 'Our Whole Lives: Lifespan Sexuality Education', and volunteers with the Young Leaders Council of Fenway Health (where she serves on the Steering Committee). She first became interested in sexual health education during her undergraduate years, when she helped teach a sexual health course to incarcerated teenagers in Baltimore.

## ***Glossary of Important Terms***

**Abstinence-Only-Until-Marriage Programs:** Sometimes called **Sexual Risk Avoidance Programs**, these programs teach abstinence as the single option for teenagers

**Comprehensive Sexual Education:** Programs that cover a range of topics including reproduction, puberty, sexual orientation, gender identity, relationships, communication, decision-making, **STI** prevention, society and culture.

**Dependent variable:** An outcome that changes as a result of changing the **independent variable**.

**Diploid Cell:** A cell with two copies of its chromosomes.

**Haploid Cell:** A cell that contains a single copy of its chromosomes.

**Independent variable:** A condition that the experimenter can change in a test or experiment.

**Recombination:** The process wherein genetic material (**DNA**) is “shuffled” when it is passed onto offspring.

**Selective pressure:** Any reason for an individual with a given **trait** to have a fitness advantage or disadvantage. We will focus on infectious diseases as a selective pressure favoring humans with **traits** protecting them against infection.

**Sex (Sexual Reproduction):** The mixing of genetic information that occurs when haploid gametes fuse.

**Sexual Health Education:** Programs that generally cover basics of anatomy, contraception, and **STI** prevention. Legally, HIV prevention information is often distinguished from more general sexual health education.

**Sexually Transmitted Infection (STI):** An infection passed from one person to another person through sexual contact. These infections can be caused when a bacteria, virus, or parasite enters and grows in or on your body.

### ***Resources to learn more***

- (1) "Sex Determination: Why So Many Ways of Doing It?": <http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1001899>
- (2) "The Evolution of Sex": <http://www.pbs.org/wgbh/evolution/sex/advantage/index.html>
- (3) Planned Parenthood: <https://www.plannedparenthood.org/learn/parents/resources-parents>
- (4) Sexuality Information and Education Council of the US: <http://www.siecus.org/index.cfm>
- (5) Fenway Health LGBT Health Education Center:  
<http://fenwayhealth.org/the-fenway-institute/education/the-national-lgbt-health-education-center/>
- (6) Directed Sex Cell Development in a Dish: <http://sitn.hms.harvard.edu/flash/2016/bypassing-infertility-directed-sex-cell-development-dish/>
- (7) Zika: <http://sitn.hms.harvard.edu/flash/2016/sexual-transmission-of-zika-possible-from-men-to-women/>

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