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## Mechanisms of Human Health and Disease 2017

A summer program for high school students who excel in science



Nationwide Children's Hospital  
Attrn: Community Education  
700 Children's Drive  
Columbus, Ohio 43205-2696



# Mechanisms of Human Health and Disease

Established in 2006, Mechanisms is a fast-paced, in-depth program designed to challenge the serious science student who is interested in medicine or medical research. Students in the Mechanisms program investigate cancer and other diseases with lectures from research experts. At the final class, students showcase their child health work to family and teachers. This course is lecture and activity based, there is no lab component.

## Purpose

Introduce motivated and high-achieving high school science students to college level curriculum for medical and biomedical research careers.

## Objectives

During the program, students will:

- Discuss college-level content in cellular and molecular biology, genetic engineering, physical and medicinal chemistry, immunology, virology, biomedical information and pathophysiology.
- Gain a competitive edge by developing life skills including networking, resume, writing, school selection, job applications, learning strategies and business communications.
- Complete an independent project in molecular pathophysiology.
- Complete an apprenticeship group project for a selected career path.
- Explore career options in medicine and biomedical research.

## Audience

Class is designed for incoming seniors currently enrolled in 11th grade. Other students who meet the prerequisites will be considered. The average GPA of students accepted into the program in 2016 was 4.3.

## Prerequisites

High school biology and chemistry. No exceptions will be made.

## Class Size

We will accept up to 30 qualified candidates into the summer 2017 class.

## Attendance and Commitment

- Students **must** attend and participate in all class and group project sessions. No exceptions.
- Students spend an average of 10-15 hours each week on readings, research and papers **outside** of class.
- Students will be required to read two books, before class begins.
- Students prepare for final presentation by creating an outline, final paper and presentation. Average paper length is 10 pages.

In a survey given to participants 83% reported Mechanisms was the most challenging experience in their academic career.

## Date/Time

Monday and Thursday evenings: June 12 - July 24, 2017 from 5:30 - 9 p.m.

- OSU Clinical Skills Center Field Trip on Wednesday afternoon about mid-program.

## Location

Nationwide Children's Hospital Education Center  
700 Children's Drive | Columbus, Ohio 43205

## Cost

\$100 per student.

Snacks and refreshments are provided. Limited partial scholarships available.

No application fee.

## Previous Student Successes

Mechanisms participants have enjoyed continued academic success enrolling in prestigious institutions including Massachusetts Institute of Technology, Harvard, Brown, and Yale.

## A Typical Class

The following is an example of a typical class period:

5:10 p.m.	Open Office Hours
5:30 p.m.	Quiz
5:40 p.m.	Speaker Panel
6:45 p.m.	College Level Course Information
7:15 p.m.	Pathophysiology Lecture
7:45 p.m.	Teaching Assistant Lecture
8:30 p.m.	Competitive Edge
8:55 p.m.	Wrap-up
9:00 p.m.	Adjourn

## *Here's what some of our past participants had to say*

"I would recommend this class to any ambitious, hardworking student who has a deep passion for science."

"...this class challenged me and influenced my future decisions."

"This program was a lot more challenging than my science classes at high school. I needed more of a challenge."

"I've never stuck with something this hard. I have learned it's more worthwhile than anything easy."

"Mechanisms...has shown me what I was meant to do in my future."

"This course was one of the most intellectually stimulating of my life."

## Confirmation

Students will be notified of their acceptance into the program no sooner than May 1, 2017.

## Applications

You can apply electronically or by mail. **Do not apply both ways.** Students that apply both ways will have points deducted from their application.

- Electronic: Log onto [NationwideChildrens.org/MHHD](http://NationwideChildrens.org/MHHD). Click on the left navigation. Complete your application. You can go in and out of the system as many times as you want but write down your ID# so you can return to your partially completed application. Be sure to click SUBMIT when you are done. If you do not click submit, your application will look incomplete.
- If you prefer to apply by mail, print off the application form. Fill it in completely. When finished, email or mail the completed application, including essays, to [CommunityEducation@NationwideChildrens.org](mailto:CommunityEducation@NationwideChildrens.org) or Community Education, Nationwide Children's Hospital, 700 Children's Drive, Columbus, OH 43205. Mail must be postmarked no later than March 24, 2017.
- Late or partial applications will NOT be accepted. No exceptions.

## Student Selection

Students are selected by a panel of researchers and physicians at Nationwide Children's Hospital based on the caliber of their program applications and essays. Applications are evaluated through a blind review process.

## Top Student

The top student from each class is given the opportunity to participate in an internship at The Research Institute at Nationwide Children's Hospital. The top 5 students are invited to apply the following year as teaching assistants for the program.

## Questions

Contact Marcie Rehmar at

[Marcie.Rehmar@NationwideChildrens.org](mailto:Marcie.Rehmar@NationwideChildrens.org)

(614) 355-0662

## Young Scientist Education Series

Participants attend this lecture series held on Thursday at 4 p.m. for further exposure to research, medicine and careers.

Log onto [NationwideChildrens.org/Young-Scientist-Series](http://NationwideChildrens.org/Young-Scientist-Series) to review former lectures on-demand.