



Westlake University Pre-College Program

Summer 2025 Application Form

SECTION 1: STUDENT INFORMATION

First Name: _____ Family Name: _____

Gender: _____ Race: _____ Date of Birth: ____ / ____ / ____ (MM/DD/YYYY)

Nationality (if you have dual citizenships, please list them all): _____

Email: _____ Phone No.: _____

Passport Number: _____ Passport Expiration Date: ____ / ____ / ____ (MM/DD/YYYY)

Mailing Address: _____ / _____ / _____ / _____ / _____
Street/P.O. Box City State Zip Code Country

Current High School: _____ Grade Level Starting Fall 2025: _____

Have you taken or are you planning to take Physics courses in High School? Please list them all.

Overall GPA: _____ SAT score (if applicable): _____

SECTION 2: ACADEMIC TRACKS

Please rank your academic track preference (**1 = most interested, 4 = least interested**)

Biology ____ Chemistry ____ Engineering ____ Biomedical Engineering ____

SECTION 3: ESSAYS

In the space below, tell us about your career objectives, your interest in science and engineering, and how the Westlake University Pre-College Program can help you reach your goals.

1. Why are you interested in the Westlake University Pre-College Program?

2. Describe your higher education and career aspirations.

3. List relevant academic awards, achievements, and extracurricular activities (e.g., Science Fair, math club, scientific projects, etc.) you have participated in.

4. On a scale from 1 to 10, how likely are you to do your undergraduate studies in China?

SECTION 4: CONFIRMATION

Please confirm that you are applying to attend this program and that your parents/legal guardians know of the application.

Applicant's Print Name: _____ Signature: _____

Parent/Legal Guardian's Print Name: _____ Signature: _____

Please submit the application form to intladmissions@westlake.edu.cn by January 10, 2025.

Academic Track Information

• Chemistry Track

Students opting for the Chemistry Track will explore experimental and theoretical chemistry in the Laboratory of Nanosynthesis in the Westlake School of Science, directed by Westlake Professor Hongyu Chen. The lab studies matter at the nanometer scale, where physical and chemical properties often differ from our everyday experiences. In this track, students will use metal nanoparticles as a target to gain knowledge and skills in chemical synthesis and characterization. Students will explore the chemical changes of metal compounds and learn about the practical applications of nanoparticles. Through these investigations, students will gain a deeper perspective on how chemistry governs our world and improves our lives.

• Biology Track

Students opting for the Biology Track will learn experimental techniques in the School of Life Sciences academic biology laboratory facilities, instructed by Dr. Yanbo Mao and directed by Westlake Professor Jian Yang. The theme of this track is genes and genetics, with an emphasis on state-of-the-art CRISPR/Cas9 technology and well-established genetic engineering techniques. The program will cover the genetic mechanism by which eye color is inherited in fruit flies and the use of the CRISPR/Cas9 genome editing tool to mutate the specific gene and trace the resulting expression changes using fluorescent protein. Through these activities, participants will learn the theory underpinning gene manipulation and acquire hands-on laboratory skills in molecular biology. Students are expected to have the basic knowledge of DNA replication and transcription, gene expression, and cell growth.

• Engineering Track

Students opting for the Engineering Track will learn about bionic robot design, fabrication, and control at the Westlake School of Engineering. Research in the lab involves studying aerodynamics and hydrodynamics of bio-locomotion, developing novel programmable metamaterial for aero/hydro morphing structures, and advancing machine learning and bio-inspired algorithms for vortical flow control and sensing. Laboratory activities will include designing, constructing, and characterizing autonomous vehicles whose propulsion mechanism mimics creatures in the natural world. These "robotic fish" swim through the water like real fish and are equipped with sensors and transducers together with data about the underwater environment. Through the design and 3D printing of robot fish with locomotion programming, you will learn and apply advanced engineering technologies applicable to many fields.

• Biomedical Engineering Track

Students who opt for the Biomedical Engineering track will learn about fundamentals and experimental skills in the cross-disciplinary field of biomaterials and tissue engineering at the Biomaterials and Regenerative Engineering Alliance Laboratory (B-REAL). Specifically, students will be able to learn how to prepare biodegradable polymers (biomaterials), culture human cells, and fabricate biomaterials into scaffolds (or tissue templates) using various techniques, including 3D printing. Students will be given opportunities to solve challenges related to material discoveries and applications in engineering human tissues such as skin, bone, nerves, and beyond.