

Center for Teaching and Learning
Student Outreach Programs
IMSA STEM League

IMSA's STEM League programs are distance learning courses that have been designed specifically for self-motivated, independent middle and high school students. During any given STEM League, students explore a hot topic in STEM using a variety of source material which prepares them for a series of online and live scholarly discussions. STEM League courses provide opportunities for students to engage in activities that foster a deeper understanding of and appreciation for STEM content along with healthy debate of any relevant ethical considerations. Our first STEM League course, Genetics, was launched in January, 2020. IMSA has subsequently added three more STEM League courses, the Ethics of STEM, Forensics, and Artificial Intelligence, with additional courses in development. IMSA STEM League was named the winner of the National Consortium of Specialized STEM Schools (NCSSSS) Innovative STEM Student Program for 2020.

Many popular science extracurriculars offered at schools - such as Science Bowl or Science Olympiad - tend to have competitive elements to them and are structured in a more traditional, "top-down" approach with the goal of training students to recall and recite a litany of science facts and figures. The impetus for IMSA's STEM League program takes a different approach from this mindset by recreating more of the collaborative and constructivist side of working in STEM; modeling the way researchers come together to discuss findings and discover ways to enhance each other's knowledge and skills. Many students appreciate that this program doesn't have the typical academic pressures a regular science course would, but is still intellectually challenging and explores topics they are genuinely curious about.

There are several opportunities built-in for students to take true ownership over what they learn, such as having the ability to determine what questions they would like to discuss with each other and with the STEM professionals who are invited to share their expertise with students. Finally, in addition to having adults as facilitators, the program also features IMSA student leaders as co-facilitators, thereby allowing participants to gain the benefits of having a near-peer mentoring experience.

Students who meet all program requirements earn a certificate of completion. During two STEM League offerings (Genetics and Forensics) students read a narrative non-fiction book while simultaneously exploring and discussing content from other types of course material (such as videos, Ted-talks, articles, documentaries, etc.). Then, as a culminating event, students have the unique opportunity to meet and ask questions of a professional within the field, giving students additional exposure to possible career paths and helping them connect the program content they are exploring to the real world.

After our inaugural STEM League offering in Spring 2020 (*Genetics: The Power and Pitfalls of a Modern Revolution*) for which 22/28 students completed a program evaluation, 100% said they learned something new and there was a 73% increase in overall students' interest level in

pursuing genetics studies during or after high school (before the program just 9%, n=2 indicated they “mostly” had considered pursuing genetics studies during or after high school while after the program this measure jumped to 82%, n=18).

More information on IMSA STEM League Courses can be found [here](#).