Innovation Practicum

a 2-year sequential in-school and off-site research curriculum for 10th-11th grade Ingenuity students

THE INGENUITY PROJECT

Goal: Students gain hands-on experience in Applied Mathematics, Computer Science, Machine Learning, Data Science, and/or Statistics and learn coding languages and/or statistical analysis programs.

Student Responsibilities

- **Sophomore Year & Following Summer:**
  - Enroll in Introduction to Scientific Research, identify research interests, identify mentors, and undergo training at research placements.
  - Begin work with professional mentors at research site.
  - **TIME: 60 hours over the summer.**

- **Junior Year:**
  - Take AP Statistics or Computer Science AB.
  - Continue working with mentors at research site.
  - If appropriate, work with mentors towards publication of results and submissions to conferences and seminars.
  - **TIME: Minimum 8 hrs. per week.**

Current Partners

- Biotrophics (Harbor Designs & Manufacturing)
- Dipole Materials, Inc.
- Morgan State University, Dept. of Mathematics
- The Mathematical Institute for Data Science (M.I.N.D.S), Johns Hopkins University
- Towson University, Dept. of Mathematics
- Traitify
- University of MD School of Social Work

Mentor Role

- Provide direct oversight and feedback at research site.
- Read drafts of papers and presentations.
- Assign relevant readings.
- Provide guidance to improve assignments.
- Complete paperwork for competitions.
- Help identify and prepare for conferences and/or seminars in respective fields.

Student Academic Backgrounds

Prior to Innovation Practicum, students have completed the following coursework:
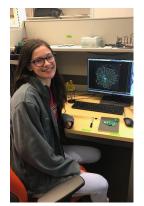- Honors Geometry, Honors Algebra II, Honors Biology, Physics and Chemistry, and Introduction to Computer Science

During Innovation Practicum, students will complete the following coursework:
- AP Statistics, AP Computer Science, or AP Computer Science Principles

Other common math and science classes completed by Ingenuity juniors:
- AP Calculus AB, AP Chemistry or Chemistry II, AP Physics I

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