PreK-12 STEM
Research Original Interventions
Research-Based Outreach

New Faculty Orientation – August 2018
PK-12 Research-Based Outreach

VAST: Viterbi Adopt-a-School / Adopt-a-Teacher

Katie Mills, VAST Director

Maja Matarić, VAST Lead

Gigi Ragusa, VAST K-12 STEM Education Researcher
VAST: Viterbi Adopt-a-School / Adopt-a-Teacher

Local Schools:
- Low income
- Low resources
- 98% under-represented minorities
- USC Family of Schools & NAI
- VAST: >200 schools
VAST: Viterbi Adopt-a-School / Adopt-a-Teacher

Help with Broader Impacts Projects & Partners

https://viterbipk12.usc.edu/broader-impacts/
VAST: Viterbi Adopt-a-School / Adopt-a-Teacher

USC Professor Luhar Partners with STEM Academy of Hollywood

Click Here to Know More
Professor Shen Helps Bring Biotech to Boyle Heights

Click Here to Know More
PreK-12 STEM Research-Based Outreach

Good place to start Broader Impacts

STEM Spotlight on Centers
Robotics Open House (April '19)
Code.org Regional Partner
Code Dojo (12/6/18)
SHINE Summer HS Research

Affiliates:
Robotics & Coding Academy (Prof. Ragusa)
CS@SC Summer Camps (Prof. Miller)
PK-12 STEM Research-Based Outreach

Pipeline of events to engage schools & students in research:

- Faculty can contribute Broader Impacts through VAST events & programs

Summer 2018: SHINE, RET
  Discover Engineering, CS@SC Camps

Fall
  Spotlight: Center for AIS

Dec 2018
  Code Dojo

April 2019
  Robotics Open House

February 2019
  EngX (Prof. Armani)
  Spotlight: The Behavioral Informatics Center (Prof. Narayanan)

>28,000 students

Tentative partners and timeline for 2018-19 Spotlights

Student Affairs’ STEM Outreach programs (MESA, FIRST Robotics, Discover Engineering, etc.)
VAST: Viterbi Adopt-a-School / Adopt-a-Teacher

USC Viterbi NSF Research Experience for Teachers (Profs. Matarić and Ragusa)
- STEM teachers in faculty labs (5 wks)
- Lesson Plans – Common Core

USC Viterbi Summer High School Intensive in Next-Generation Engineering
- Top-performing high school students
- 7 weeks in faculty labs; Ph.D. student mentors

+ Prof. Ragusa’s STEM Academy: Community College Students

SUMMER PROGRAMS

USC Viterbi
School of Engineering
<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>2018-2019</td>
<td>Tap into VAST Event</td>
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<tr>
<td></td>
<td>Speak/Judge</td>
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<tr>
<td></td>
<td>Join RET or SHINE programs</td>
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<tr>
<td>2019-2020</td>
<td>Identify possible partner school for lab tour or speak/judge</td>
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<tr>
<td>2020-2021</td>
<td>Develop relationship with the partner school</td>
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During the year you submit CAREER proposal:
Fall: brainstorm, VAST identifies partner possibilities, meet Principal
Spring: interaction with Partner (lab tour, meet faculty, etc.)
May: ask for a letter of collaboration from VAST & Partner Principal
Example of a 5-year CAREER Partnership with a PI doing computational research

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<tbody>
<tr>
<td>2019-2020</td>
<td>Computational PI partners w/ math or physics teacher – “externship”</td>
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<tr>
<td>2020-2021</td>
<td>Host/judge at USC a math challenge based on externship with partner school (assess &amp; distribute)</td>
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<tr>
<td>2021-2022</td>
<td>Teacher partner “externship” evolves into new challenges or new lesson plans (assess &amp; distribute)</td>
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<td>2022-2023</td>
<td>Regional math challenge at USC based on externship (assess &amp; distribute)</td>
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<tr>
<td>2023-2024</td>
<td>Regional math challenge at USC based on externship – distribute materials (assess &amp; distribute)</td>
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