Build Strong Bodies and Minds through Service Learning

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**PHYS 295**
- Service Learning in Outreach
  - 1-3 credits, undergraduate
  - Design and pilot instructional materials and programs

**PHYS 290**
- QuarkNet Service Learning
  - 1-3 credits, undergraduate
  - Support and maximize experiences for QuarkNet teachers

**PHYS 595**
- Instructional Design in the Physical Sciences
  - 1-3 credits, graduate level / in-service teachers
  - Research oriented design of instructional materials

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**Large group presentations**
- The Force and Pressure Show
- The Cryogenics Show

**Design / pilot K-12 classroom materials**
- Do Nails Remember?
- Igor the Tiny Tiny Human
- Rockets!

**Lead / support informal learning**
- Science Clubs
- After school programs
- “Sidewalk Science”
- Saturday Morning Astro

**Learn life-skills**
- Faculty shop training
- Teamwork
- Teaching, pedagogy

**Common Threads**
- Students **sustain** Physics and Astronomy Outreach Programs.
- Students **learn** principles of effective instructional design, delivery and assessment.
- Students **develop** skills in teamwork, commitment, communication and presentation.
- Students **contribute** to others, developing their own knowledge and expertise.
- Students **reflect** personally on their experiences, in a framework of life-long learning.

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**Research in instrumentation and design**
- The “Black Box Experiment”
- “Too Cool to Resist”

**Elevator to Space – An Introduction to Nanoscale Materials**

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**Classroom support, project development, research**
- Mentorship for teachers
- Professional development presentations

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**Voltage (V) vs Temperature (K)**

- Elevator to Space – An Introduction to Nanoscale Materials