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

**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.

**PHYS 595**

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

**Research in instrumentation and design**

- Elevator to Space – An Introduction to Nanoscale Materials

**PHYS 290**

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

**Classroom support, project development, research**

- Mentorship for teachers
- Professional development presentations

**Graphs and Figures**

- Voltage (V) vs Temperature (K)
- Elevator to Space – An Introduction to Nanoscale Materials
- "Too Cool to Resist"