Partnerships for Pathways to STEM Workforce

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Pathways to Workforce Success

Harnessing the Power of Partnerships in a High School Nanoscience Out of School Time Program

John D. Ristvey, Jr. UCAR

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McREL Nano Research

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NanoExperiences: ITEST—2011-2014

NanoExperiences

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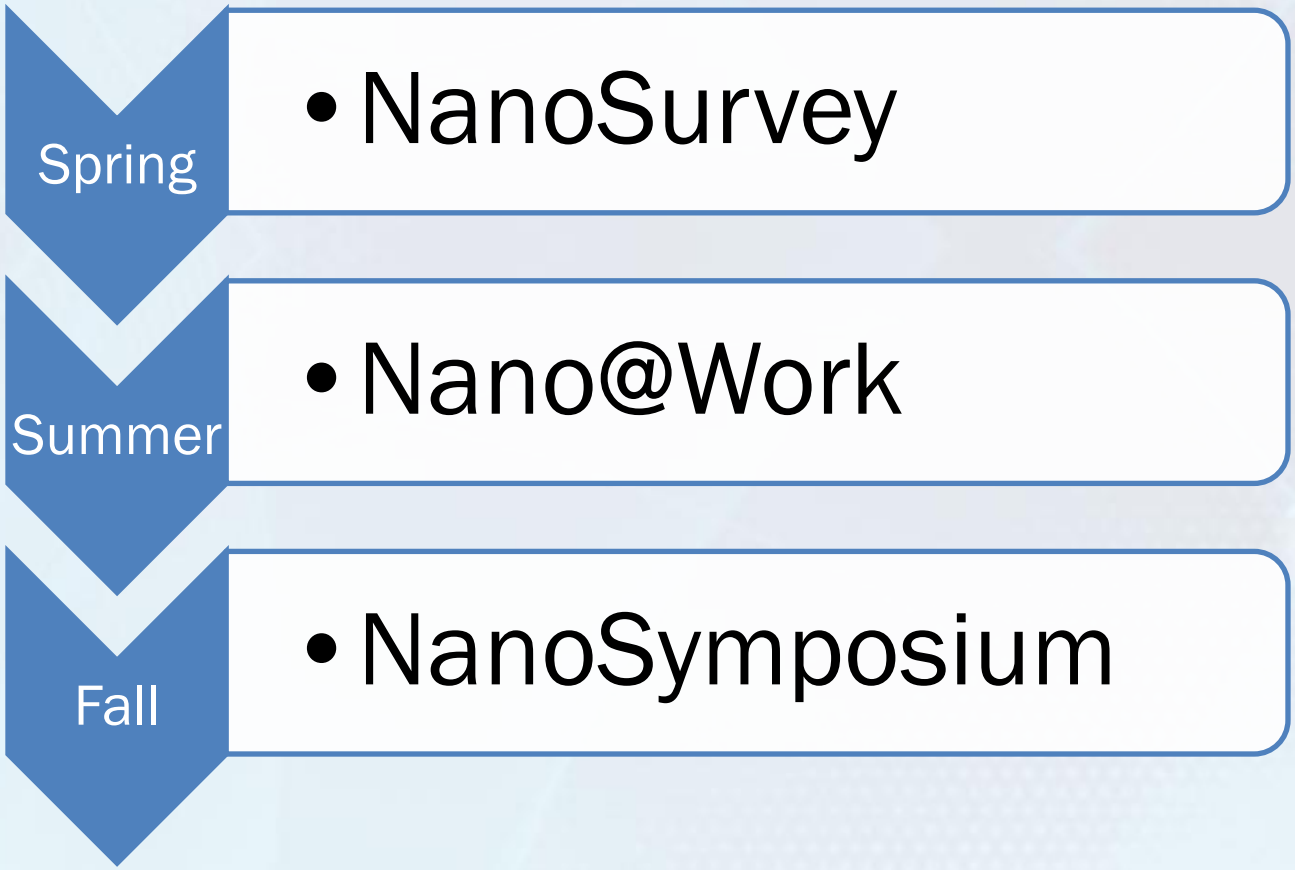
- PATHWAYS TO WORKFORCE SUCCESS



University Partners

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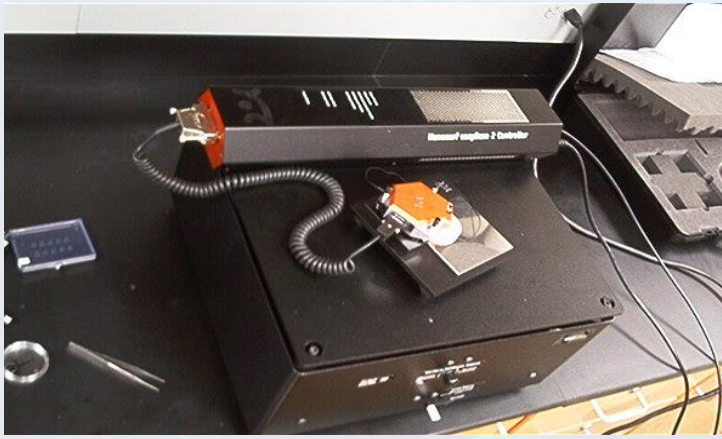
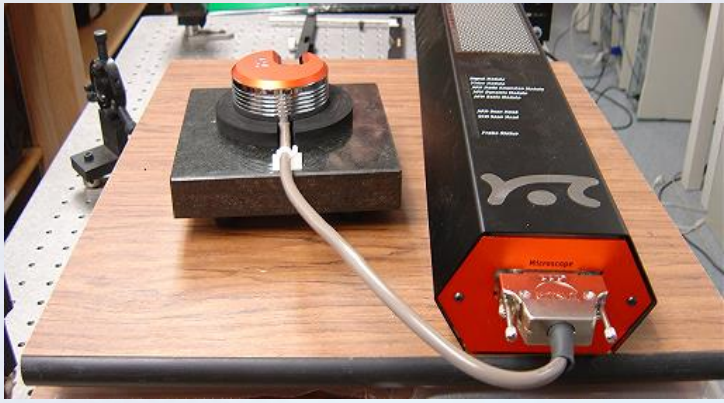
University	Role	Duration
Stanford Nanofabrication Facility	Remote Access to Cleanroom Session	90 Minutes
University of Northern CO	Hands-on Mobile AFM and STM Session	90 Minutes
Colorado School of Mines	Internship Tour	2 Weeks
Arapahoe Community College	Discussed Multiple Pathways, Hands-On Activities ½ day session for students/parents	½ Day





Federal Lab Partners

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Lab	Role	Duration
National Institute of Standards and Technology (NIST)	Characterization of materials (hands-on work with TEM, SEM, AFM), and practical applications	½ Day
National Renewable Energy Laboratory (NREL)	Principal Scientist Kannan Ramanathan met with the students to discuss his work in the CIGS group	½ Day
National Center for Atmospheric Research (NCAR)	Visualization lab and exhibits and lab of two atmospheric chemists	1 Day

Business Partners

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Business	Role	Duration
Lockheed Martin	Job shadow/tour through research labs	1 Day Tour (25 students) 1 Day Job Shadow (6 students)
Siva Therapeutics	Students worked with their scientist and bioengineer in their research and production facility	1 Week
ALD NanoSolutions	Spoke with ALD Process Tech about career path as a young woman with a degree in bioengineering	½ Day

Job Shadow Guide

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Job Shadow Guide

PRE-VISIT ON-SITE POST-VISIT MY NOTES

Introduction

A job shadow is a learning experience that takes place at a business in your community. During a job shadow, you follow and observe your host during a typical work day. You will also have the opportunity to ask questions, take notes, and document your visit in other ways. After, you will complete some activities that help you think about the things you saw, heard and learned.

Job shadows give you a chance to:

- Identify potential career interests
- Observe daily work routines
- Learn the academic, technical and personal skills required on a particular job
- Practice professional communication
- Note various work cultures and environments
- Commute to and from the job shadow location
- Make the connection between school, work, and future goals

User login

Username *

Password *

- Create new account
- Request new password

LOG IN

- http://jobshadow.educationnorthwest.org/

NanoEx Industry Partnerships

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- **Relationships take time**
  - Begin planning *Nano@Work* a full year before the scheduled roll out
  - Follow-through, perseverance, tenacity, and "people skills" are needed to identify and contact local businesses *and* ask for their time and resources
  - Create your program around the needs and interests of local businesses
  - Listen for business interest(s) and let them inform the summer agenda
  - Train participating businesses
- Transfer relationships from developers to program staff

Student Survey Results

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Experience in Nano@Work (n=30; 6-point scale).

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree	Mean (Std. Dev.)
I like what I am learning in NanoExperiences.	-	-	-	7%	47%	47%	5.40 (.62)
I think I will be able to use what I learn in NanoExperiences in my classes in school.	-	-	3%	20%	57%	20%	4.93 (.74)
I think that what I am learning in NanoExperiences is useful for me to know.	-	-	-	13%	47%	40%	5.27 (.69)
I think that what we are learning in NanoExperiences is interesting.	-	-	-	3%	50%	47%	5.43 (.57)
Understanding the topics in NanoExperiences is important to me.	-	-	-	17%	43%	40%	5.23 (.73)

Partner Survey Quote

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Do you think that the NanoExperiences project is beneficial to society? How so?

"Yes. Students don't get enough exposure to the professional world beyond school and it benefits us all when they have a better sigma of the demands and expectations in the workplace today. It's a shame these experiences aren't more plentiful."

Thanks!

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- **NSF:** Gerhard Salinger
- SNF: Mike Deal, Maurice Stevens
- **Pilot/Field Teachers**: DPS, Jeffco, Mapleton, Westminster
- **McREL**: Whitney Cobb, Sandra Weeks, Sharon Unkart, Geraldine Robbins
- **Education Northwest**: Danette Parsley, Nicky Martin, Debbie Ellis
- **BSCS**: Molly Stuhlsatz, Audrey Mohan

http://www.nanoexperiences.org/index.html