PhysTEC Share-a-Thon!

Trevor I. Smith
Rowan University
What is a Share-a-Thon?

• A chance to get a LOT of ideas in a short time
• Each speaker:
  • 3 minute presentation
  • 2 minutes for questions
• General discussion and more questions at the end
Presenters

• Earl Blodgett, University of Wisconsin – River Falls
• Lacy Cleveland, Colorado School of Mines
• Paige Evans, University of Houston
• Donna Stokes, University of Houston
• Sarah LeGresey Rush, University of Kansas
• Jason Sterlace, James Madison University
• Lynn Lucatorto, James Madison University
• Nate Magee, The College of New Jersey
• Izabela Stroe, Worcester Polytechnic Institute
• Shari Weaver, Worcester Polytechnic Institute
• Liang Zeng, The University of Texas – Rio Grande Valley
• Maryanne Takamiya, University of Hawai`i at Hilo
• Phil La Porta, Rowan University
University of Wisconsin–River Falls
Getting the word out about pathways to teaching

- Two pathways available at UWRF
  - Undergraduate path: content area major + teacher preparation courses
  - STEMteach graduate path: 1 year of teacher preparation, for career changers or late deciders who already have their content area degree

- Visit strategically selected classes/groups
  - BIOL 110 Freshman Seminar during careers module, showcase both paths.
  - All intro physics courses: to plant a seed in the freshman physics/engineers for the UG path and intrigue the upper class biology & chemistry students.
  - Visit selected upper level physics and chemistry to catch late deciders.
  - Visit student orgs: Society of Physics Students and Chem Demons.
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Mythbusters: Debunking Teaching Myths

Dr. Lacy M. Cleveland

Teaching vs. Industry

<table>
<thead>
<tr>
<th>Teaching</th>
<th>Lockheed Martin</th>
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<tbody>
<tr>
<td>Salary + Retirement Benefits</td>
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<tr>
<td>Mid-Career Salary + Benefits</td>
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<tr>
<td>Early: $43K + $17K = $60K</td>
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<tr>
<td>Mid: $75K + $17K = $92K</td>
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<tr>
<td>Contract</td>
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<td>9-month contract</td>
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<td>74 days not on contract</td>
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<td>Retire late 50’s with 87.5% of HEI</td>
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<tr>
<td>Salary + Retirement Benefits (4% contribution into 401K)</td>
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<tr>
<td>Early: $66K + $3K = $69K</td>
<td></td>
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<tr>
<td>Mid: $78K + $3K = $81K</td>
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<tr>
<td>Contract</td>
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<tr>
<td>12-month contract</td>
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<td>10 – 40 days off</td>
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<td>Retire at 65 salary depends on market performance &amp; life expectancy</td>
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One Degree....Many Options!

- Keep your major in math or science!
- Add a math/science teaching certificate with no additional time!
- Meet your capstone requirement!
- Try out teaching with 1 credit hour!
- Job security and satisfaction!
- Average starting salaries of $53,000!
- **MAXIMIZE** your potential with teachHOUSTON
  - NSM’s Teacher Prep Program!

Registration Open through Friday, January 19
For more information contact: tHadvising@uh.edu
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University of Houston
Physics and teachHOUSTON

**teachHouston (tH)**
- Established 2007
- Uteach Replication site
- ~250 students enrolled
- Over 10 years - no physics teachers

**NSF Noyce Scholarship Program (2012)**
- Major/minor degree plan
- Physics By inquiry Course
- Research Method Course

**Buy In**
- Upper Administration
- Department Chair
- Physics/tH Faculty

**Trust between parties**
- 8 physics teachers in the last 4 years
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How can students get a physics degree and meet all the Kansas licensing requirements in 4 years?

- UKanTeach - develop and teach new course that addresses the new standards (by 2020)

UTeach vs. National

Cost per year
$29,000 vs. $53,000

Length of time teachers stay in teaching
5 years vs. 2.1 years

Increased student learning
+4 months in math
+5.7 months in science

“The new Physics standards are significantly different enough from the previous standards that a standard by standard crosswalk is not helpful.”

Sarah LeGresley Rush
University of Kansas
Physics and Astronomy
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New initiatives to support our preservice teachers

- Graduate assistantships
- Experience teaching undergraduate labs
- AAPT summer conference
- Support during student teaching semester

Jason Sterlace, TIR at JMU
Recruitment of physics majors
Recognize the career choice of teaching

Networking for: current students recent graduates

JMU H.S. Physics Teacher of the Year Award

2016
Mrs. Sonia Faletti
Standford - B.S.
UVA – M.A.

2017
Mr. Jon Goetz
Engineer

“Prospective teachers” engage with current HS Physics Teachers!
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Teacher Preparation Program
Recruitment Strategy

- Program is listed as a specialty along with pre-law and pre-med
  - Students asked if interested in program when they apply
- Letter home to all freshmen and sophomore students
  - Addressed to student and their families
  - During October break after Term
- On return from break, department heads from all academic departments send emails to all students in their area
- Information sessions held
- Future plan for Physics – present opportunity to PLAs and/or freshmen classes
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Physics Career Education Day: Design, Implementation, and Assessment

Liang Zeng
Department of Physics and Astronomy
The University of Texas-Rio Grande Valley, Edinburg, TX 78539

I. Introduction (UTRGV, HSI, 88% Hispanic, located in South Texas)

II. Literature Review

III. Theoretical Framework

IV. Research Method
• Selection of students
• Research design

V. Results

Figure 1. The percentage of visiting high school students who were interested in studying physics and physical science (with secondary teaching certification) at UTRGV in the presurvey and postsurvey.
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Develop introductory astronomy labs for majors and non-majors:
• Reinforce trigonometry (small angles, rad vs. degree)
• Introduce general concepts of spherical trigonometry
• Explore simple optical systems (field-of-view, pixel scale)
• Inverse square law(s)
• Train majors as lab assistants

Astronomy Lab Assistants:
• Set up equipment (from plastic hemispheres to 6-inch Celestrons and CCD Cameras)
• Aid instructor and students during the 3 hr lab session:
  • Troubleshooting equipment
  • Guide students in their learning (do not provide answer)
  • Help during end-of-semester trip to Maunakea 6-10 students
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Engagement/Buy-in Through College Wide Professional Development Workshop

Philip R. La Porta, PhD.
Instructor of Physics at Rowan University