Tools for Physicists\textsc{L} Creating a Major-Based Foundational Course

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What is Tools for Physicists?
Pulling extensively from the recommendations from Phys21: Preparing Physics Students for 21st Century Careers, a joint AAPT-APS committee report, we created a new semester course for all incoming physics majors, regardless of their math preparation. This course will attempt to set a foundation for what physicists do, why you would want to be one, and what you need to be successful.

Analytical Skills
Students will begin to learn or reinforce their knowledge and understanding of analytical skills that will be useful in future or concurrent classes, providing them with the opportunity to better contend with the conceptual aspects of future course material.

How to accomplish this:
• Problem of the week
• Dimensional analysis
• Graphing
• Vectors
• Data Taking
• Data Processing
• Error Analysis
• Basic Programming
• Logic tests
• Syntax
• Graphing

Example problem of the week: How many M&Ms fit into the LA Coliseum?
• Dimensional Analysis
• Estimation
• Discussion of informational literacy

Tools for Physicists Course Outline
• Meets for 2 lecture hours and 3 lab hours (1 lab unit) each week
• Required for all first-time freshman and transfer students in the Fall of their first year on campus.
• Required for any student switching to the semester physics degree

Professional and Interpersonal Skills
Students will learn about the field of physics, careers opportunities, and most importantly, each other providing them access to their cohort 1-3 years earlier than the current curriculum.

How to accomplish this:
• Introduction types of careers in physics
• Presentations from Faculty about research
• How does academia work
• Expectations of a physics major
• Time Management
• Study Skills
• Presentations from current physics majors about how to succeed
• Team Building Skills
• Community Building Activities
• Advising
• Course planning
• Personal statements
• CV vs. Resume
• How to apply for research opportunities
• Peer Review of professional materials
• Biases in Science
• Activities from The Underrepresentation Curriculum Project

References
2. The Underrepresentation Curriculum Project, https://underrep.com
3. Fellow physics teachers from all over!