

# The IPaSS Approach

Illinois Physics and Secondary Schools (IPaSS) combines the talent, experience and enthusiasm of Illinois' top high school science teachers with the research and content expertise of the University of Illinois to engage Illinois high school students with the highest quality physics experience.



*Opening student pathways into engineering*

"...it is our responsibility to show students that they belong and are capable of success in any course of study they desire, because we need that same vibrance from diversity of thought and experience in order to tackle the complex problems in our world."

-Marianna, Teaching Fellow

## JOIN US

If you would like more information, or are interested in being an early partner please send us your contact information via the following form:

<https://go.physics.illinois.edu/IPaSS>

## CONTACT US

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Department of Physics  
1110 West Green Street  
Urbana, IL 61801-3003

Have other questions?  
We would love to hear from you:

<https://go.physics.illinois.edu/partnership-program-questions>

## LEARN MORE

Visit our website: <https://ipass.physics.illinois.edu>



**Grainger College  
of Engineering**

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

**Illinois Physics and Secondary Schools  
Partnership Program**



*A community of Illinois physics educators*



"My biggest role as a physics instructor is to facilitate students in becoming engaged, independent life-long learners"

-Eric, Teaching Fellow



## AN AWARD-WINNING CURRICULUM

APS 2012 Award for Improving Undergraduate Physics Education

### THE IOLAB

iPaSS lab activities utilize the iOLab wireless lab system, invented by U of I physics professors



## CURRICULAR RESOURCES

### A UNIVERSITY CURRICULUM TO MEET NEW AP PHYSICS DEMANDS

- Learning goals for AP Physics exams have changed; greater focus on conceptual learning and inquiry-based lab practices
- Design of iPaSS curriculum and associated PD supports teachers in adapting to new instructional demands

### LABS FOCUSED ON EXPERIMENTAL DESIGN: THE IOLAB

- iOLab is a compact device containing all sensors necessary for hundreds of physics labs, and wireless interface supporting quick data collection
- Diverse functionality promotes student freedom to design their experiments and engage with open lab-prompts.

### THE SMARTPHYSICS ONLINE PLATFORM

- Access to U of I's undergraduate physics course materials via the smartPhysics online platform
- Flexibility for teachers to tailor-make their own courses within smartPhysics by selecting from this suite of materials

### INSTRUCTIONAL RESOURCES TO PROMOTE ACTIVE LEARNING

- Access to university lectures and discussion problem sets
- A repository of materials for engaging students actively in direct instruction and full class activities

"What I hope is for all my students to again wonder about their world — a trait that many people lose by the time they finish high school — and that they feel driven and able to learn about whatever it is they find fascinating."

-Jill, Teaching Fellow

## A PARTNERSHIP STRUCTURE WITH FLEXIBILITY

**Exploratory Partners** test-drive selected iOLab activities in their classes with support from the U of I team.

**Gateway Partners** select one aspect of the iPaSS curriculum to completely integrate into their classes (e.g. labs; online homework; video pre-lectures and checkpoints). Partners are invited, but not required to join PD activities.

**Teaching Fellows** form a cohort that meets regularly throughout the year and collaborates to adapt and implement multiple iPaSS curricular materials across their courses.

## THE PARTNERSHIP EXPERIENCE

### SUSTAINED, COMMUNITY-CENTERED PD

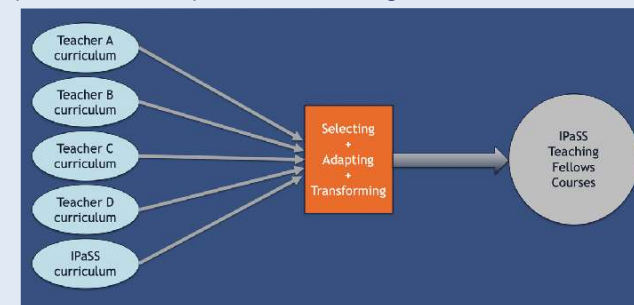
**THE IPASS COMMUNITY OF PRACTICE:** In-service high school physics teachers, education researchers, university physics instructors, and teacher professional development staff working together

**A SHARED GOAL:** Adapt university physics curricula and pedagogies to fit the context of the high school classroom

**SUSTAINED ENGAGEMENT:** Summer institutes and weekly school year meetings encourage peer support and mentorship

### COLLABORATION TO DEVELOP TOP-QUALITY CURRICULA

Teachers integrate the best materials from the community of practice to develop a robust and fitting curriculum for their class



"Within this supportive yet challenging environment, I am able to demand high-quality outcomes from my students."

-Jennifer, Teaching Fellow



A Vibrant Teaching Community  
to Strengthen the Next Generation of Engineers