



## Galileo Teacher Training Program

A LEGACY OF THE INTERNATIONAL YEAR OF ASTRONOMY 2009

### Galileo Teacher Training, Honolulu, Hawaii

University of Hawaii Institute for Astronomy, Auditorium C-214  
2680 Woodlawn Dr., Honolulu, Hawaii

*Note: We have three two-day workshops scheduled in three different rooms as listed below. Welcome is at 8:30am. Each day closes at 5:00pm with a Special Saturday program 5:00pm. Cost is \$35 for the two days. The cost includes coffee breaks and lunch.*

*Registration: <http://handsonuniverse.org/ghou2015/registration/>*

*All workshops strongly support Common Core Math Standards and New NGSS Science Standards*

### August 8 & 9: Hawaii and International Teacher and Scientist Workshops

### For High School Teachers

#### Day 1 Understanding the Universe with Modern Tools, Auditorium C-214

- 8:45am Move to session rooms and introductions of teachers, leaders and scientists
- 9:00am Introduction to image processing
- 9:45am Measuring Size/Calculation of Plate Scale
- 10:30am Break
- 10:45am Calibrating a Smartphone as Telescope  
teachers need to bring USB cord for transferring images easily
- 11:30am Moons of Jupiter
- 12:00pm Lunch in the Courtyard
- 1:00pm Jupiter mass
- 1:30pm Measuring Distance (Inverse Square Law)
- 2:00pm Using Parallax to Measure Distance
- 2:45pm Break
- 3:00pm Find a supernova to Measure Distance
- 3:45pm Introduction to Stellarium
- 4:30pm Planning Night-time Observing Sessions

#### Special Evening Activity for all in Auditorium C-214:

- 5:00 pm Linda Strubbe will discuss "astroEDU: Developing Open-Access Peer-Reviewed Astronomy Education Activities"

#### Day 2, Auditorium C-214:

- 8:30am SDSS Voyages: Galaxies, Nebula and everything SLOAN
- 10:00am Break
- 10:15am SDSS Voyages continued
- 11:30am Using Global Observatory Network of Telescopes: A Pilot Use Study!
- 12:00pm Lunch in the Courtyard
- 1:00pm Exoplanets
- 2:30pm Break
- 2:45pm Black holes, missing mass, Hubble Expansion with Supernovae
- 4:15pm Black Holes in my School (students exploring stellar mass Black Holes)
- 5:00pm Certificates for Workshop completion

Please pay fees on our website <http://handsonuniverse.org/ghou2015/fees/>



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### Global Hands-On Universe and Galileo Teacher Training

University of Hawaii Institute for Astronomy

2680 Woodlawn Dr., Honolulu, Hawaii

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#### August 8 & 9: Hawaii and International Teacher and Scientist Workshops

### For Middle School Teachers

**Understanding Size, Scale, Ratios in the Classroom and the Universe for** (Focus on Integrating Math and Science)

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#### Day 1 Topics include in Fern Room C-221:

- 8:45am Teacher Introductions
- 9:00am Maps of Hawaii, the Earth, the Solar System, and the Universe -- intro to Salsa J
- 10:00am Playdough recipes scaled, make Playdoh based scale model of Solar System
- 10:30am Break
- 10:45am Stellarium: position of Sun versus time and season, speed of objects
- 12:00pm Lunch in the Courtyard
- 1:00pm Angular Size - understanding pixel size in angles and physical size  
Smartphones with USB plugs brought to workshop
- 2:15pm Break
- 2:30pm Estimated size / distance using scale plate (fireball)
- 3:30pm Beyond water rockets

#### Special Evening Activity for all in Auditorium C-214:

- 5:00pm Linda Strubbe will discuss "astroEDU: Developing Open-Access Peer-Reviewed Astronomy Education Activities"

#### Day 2 Topics include in Fern Room C-221:

- 8:30am Crater Impacts, death of dinosaurs, moon craters, simulate crater formation in class, craters throughout the solar system
- 9:30am Salsa J journey of exploration - understand solar system objects in open ended discovery times -- students decide and classify what they see and make models.
- 10:30am Break
- 10:45am Tracking an asteroid -- predict position
- 12:00pm Lunch
- 1:00pm Hot wheel cars and electric cars tracks and trajectories and energy and linear equations
- 2:15pm Break
- 2:30pm Viewing the night sky with and without telescopes
- 3:45pm Inquiring the Moon (an inquiry based activity)
- 5:00pm Certificates for Workshop completion

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### For Eager Middle School and High School Teachers

#### IASC: Real Discoveries of Asteroids International Asteroid Search Campaign & Other Topics -- for Eager Middle and High School Teachers

##### Day 1 Topics include in Moon Room B-228:

- 8:45am Teacher introductions
- 9:00am Overview of asteroids -- KT extinctions.  
YouTube videos that teachers can use to engage students
- 10:30am Break
- 10:45am Other web resources on asteroids: <http://goo.gl/WfoA6j>
- 11:30am The history of Ceres' discovery is equally interesting:  
[http://en.wikipedia.org/wiki/Ceres\\_%28dwarf\\_planet%29](http://en.wikipedia.org/wiki/Ceres_%28dwarf_planet%29)
- 12:00pm Lunch in the Courtyard
- 1:00pm Why asteroids move! Teachers try to derive asteroid motion versus time
- 2:00pm Asteroids in those libero images with Salsa J
- 2:30pm Break
- 2:45pm Wise images of asteroids and asteroid temperatures.
- 3:00pm Richard Gelderman: Astronomical Spectroscopy and Remote Telescopes

##### Special Evening Activity for all in Auditorium C-214:

- 5:00-6:30pm Linda Strubbe will discuss "astroEDU: Developing Open-Access Peer-Reviewed Astronomy Education Activities"

##### Day 2: Astrometrica and Asteroid Searching in Moon Room B-228:

- 9:00am How to find and report on asteroids.
- 10:30am Break
- 12:00pm Lunch in the Courtyard
- 2:30pm Break
- 5:00pm Certificates for Workshop completion

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