

Curriculum Vitae

Matthew Price

Department of Physics, Ithaca College

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Education:

Oct-08: Ph.D. in Science Education, Oregon State University, Corvallis, OR.

Major Professor: Dr. Lawrence Flick

Dissertation Title: Student Learning and Epistemological Changes During an Inquiry-Based Non-Major Introductory Astronomy Course

Aug-05: M.S. in Physics, Oregon State University, Corvallis, OR.

Major Professor: Dr. Janet Tate

Jun-2000: M.S. in Physics, University of Oklahoma, Norman, OK.

Major Professor: Dr. Michael Strauss

Thesis Title: Direct Photon Cross Section Measurements from $p\bar{p}$ Collisions with $\sqrt{s} = 630$ GeV at DØ

Aug- 97: B.S. in Physics, Oregon State University, Corvallis, OR.

Thesis Title: The Search For Pulsars in the Inner 31 arcseconds of M31

Skills:

Computer Platforms: Comfortable working in a Mac, Windows, or Unix platform. Have maintained computer teaching lab in department of physics since 2005.

Astronomy Software: Starry Night, Voyager III, NIH Image, and CLEA.

Programming Languages: Fortran, Latex, HTML, learning PHP.

Drawing Software: Photoshop

Statistical Software Analysis Packages: SPSS, SPLUS

Interactive Classroom Response Systems: Interwrite PRS, Qwizdom.

Additional Skills: Telescope operation, computer interfacing, CCD camera usage for astronomical imaging.

Teaching Experience:

- Aug-08 – Present Assistant Professor of Physics and Astronomy, Department of Physics, Ithaca College, Ithaca, NY. I am involved with the development and research of instruction in a SCALE-UP modeled classroom. This research involves non-major general education astronomy and algebra-based physics.
- Mar-05 – Aug-08 Physics Instructor, Oregon State University, Corvallis, OR. Large enrollment introductory astronomy course tailored to help non-major students learn how scientific models are developed and used in science.
Jun-04 – Dec-04:
- Jan-05 – Mar-05: Physics Instructor, Oregon State University, Corvallis, OR. Instructor for
Jan-04 – Mar-04: PH206, Stellar Evolution.
- Mar-01 - Jun-01: Teaching Assistant for PH104, PH205, PH206, PH207 Astronomy Laboratories, Department of Physics, Oregon State University, Corvallis, OR. PH211 Physics Laboratory, Department of Physics, Oregon State University, Corvallis, OR.
- Jun-01 – Mar-03: Research Assistant for Janet Tate. Transparent Conducting Oxide group, Oregon State University, Corvallis, OR. Thin film deposition and characterization, with emphasis on the Hall effect.
- Jun-00 – Aug-00: Physics Instructor, University of Oklahoma, Norman Oklahoma. Physics 2514 and 2524 Introductory Physics with Calculus. Book: Fundamentals of Physics By Halliday, Resnick, and Walker. Physics 2414 Introductory Physics without Calculus. Book: Physics with Principles and Applications by Giancoli. Astronomy 1504 Introductory Astronomy. Books Horizons, Exploring the Universe Foundations of Astronomy by Seeds. Astronomy 1514 Lab. New Lab for Astronomy 1504. Book Horizons by Seeds.
- Jun-99 – Aug-99:
Jun-98 – Aug-98:
- Aug-97 - Jun-00: Teaching Assistant, Astronomy 1504 Introductory Astronomy. Book: Horizons, Exploring the Universe Foundations of Astronomy by Seeds. Astronomy 1514 Lab. New Lab for Astronomy 1504. Book Horizons by Seeds.
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Research Experience:

- Aug-08 – Present: Collaborator: Instructional development of Performance-based activities for general-education astronomy courses Ithaca College Department of Physics, Ithaca, NY. This involves taking lessons learned from my work at Oregon State and developing a working instructional model that can be applied to the performance based physics classroom.
- Sept-05 – Aug-08: Project Coordinator. Curriculum and instruction development, introductory astronomy Oregon State University, Corvallis, OR. Development of Curriculum designed to help non-major science students develop an understanding of models, argument, evidence, and theory in science. This curriculum uses several instructional styles developed for use in large enrollment courses. Major Professor: Lawrence Flick.
- Jan-04 – Jun-04: Design and implementation of project to study initial state of student scientific epistemology in introductory astronomy, Oregon State University, Corvallis, OR. This project was developed in order to see how non-major introductory science students understand the nature of science. Overseeing Professors: Edith Gummer and Larry Enochs
- Sep-01 – Mar-03: Research Assistant, Transparent Conducting Oxide Group. Deposition and characterization of oxide thin films with transparent conducting oxide group, Oregon State University, Corvallis, OR. Including setup of Hall effect equipment, thin film deposition techniques using RF sputtering, and characterization techniques.
- Aug-99 – Aug 00: Computer analysis of a large data set from the DØ detector computing interaction cross-sections in order to understand the parton distribution of the proton, University of Oklahoma, Norman, OK. Major Professor: Michael Strauss
- Sept-96 – Jun-97: Senior Research Project. Data analysis of central region of M31 (the Andromeda Galaxy). This analysis was conducted to identify possible pulsars in the Andromeda galaxy, Oregon State University, Corvallis, OR.
- Jun-00: The Parton Model with Applications to Deep Inelastic Scattering Quantum Field Theory Seminar/Class, University of Oklahoma. Professor: Dr. Igor Solovtsov
- Dec-99: Results from Super-Kamiokande, Nuclear and Particle Seminar, University of Oklahoma, Norman, OK. Professor: Dr. Phillip Guterriez

Dec-99: Gravitational Microlensing High Energy Physics Class, University of Oklahoma, Norman, OK. Professor: Dr. Tibor Herzeg

Jun-98: Survey of Neutron Diffraction with Applications, Condensed Matter Physics Class, University of Oklahoma, Norman, OK. Professor: Dr. Sheena Murphy

Dec-97: Gamma Ray Bursts, Stellar Interiors Class, University of Oklahoma, Norman, OK. Professor: Dr. John Cowan

Grants & Proposals:

- Submitted Jun-09: Design, implementation and dissemination of the Inventory of Student Views on Science and Astronomy. Requested \$199,714 from the National Science Foundation. M. Price and M. Rogers.
- Submitted Mar-05: Computers for Astronomy Course Laboratory. Requested \$30,971.00 from Oregon State University Technology Resource Fee Fund. Responsible Personnel: M. Price and H. Jansen. Funded for \$23,021.00.
- Submitted Nov-04: CLEA Based Curriculum in Introductory Astronomy: Making Science Meaningful for Non-Majors. Submitted to the National Science Foundation CCLI program.
- Submitted Mar-04: Funds for PRS units, and New telescope. Funded. Responsible Personnel: P. Siemens and M. Price.
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Outreach Activities:

- Jan-08 Working with undergraduate physics students in the development of an optical astronomy group at OSU. This includes taking current telescopes and CCD cameras and learning data collection techniques. Contact: William H. Heatherington hetheriw@physics.oregonstate.edu.
- Jul-07: Help developing undergraduate research programs in observational astronomy
- Jul-06: Instructor, Astronomy, Saturday Academy, Oregon State University, Corvallis, OR.
- Jun-05: Co-Instructor, Hands on Astronomy, Saturday Academy, Oregon State University, Corvallis, OR.
- Jun-03: Instructor, Astronomy, Adventures in Learning Pre-college Program, Oregon State University, Corvallis, OR.
- Jun-03: Co-Instructor, Exploring Astronomy and Exploring Physics, Oregon State University, Corvallis, OR.
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Committees:

Sep-07-present Undergraduate physics service course committee. This group meets 3 times per term to discuss implementation of PER based instruction practices into the service course curriculum. We discuss course objectives, texts, outreach to the other departments that we serve, classroom remodels, and other aspects of the course that could contribute to helping our undergraduates become more successful students.

Professional Societies and Memberships:

American Physical
Society

Association of Science
Teacher Education

Society of Physics
Students

Contributed Talks and Papers:

"Inquiry-based Curriculum in Introductory Astronomy: Making science meaningful for non-majors", M. Price, *presented at the 2006 Association of Science Teacher Education international conference*, Portland, OR, January, 2006.

"Properties of Copper Scandium Oxide Thin Films", M. Price, *presented to the American Physical Society Northwest Section Meeting* March-2002.

"A Measurement of the Isolated Direct Photon Cross Section at 630 GeV", M. Strauss and M. Price, University of Oklahoma, Norman OK. Submitted DØ Note.

Guest Lectures:

"Using electronic response units in a large lecture university course", M. Price, presented during *SED 580 College Science Teaching Course*, Department of Science and Mathematics Education, Oregon State University, Corvallis, OR, Oct-06.

"Evaluating multiple-choice exam questions", M. Price, presented during *SED Quantitative Research Course*, Department of Science and Mathematics Education, Oregon State University, Corvallis, OR, May-05.

"An introduction to Black Holes", M. Price, presented at the *Friday Night at the Observatory*, University of Oklahoma, Norman, OK, Oct-99.

Refereed Research Publications:

M. Price, 2007; Student Epistemological Gains in an Inquiry-Based Non-Major Introductory Astronomy Course. In preparation.

M. Price, 2007; Design and Implementation of an Inquiry-Based Non-Major Introductory Astronomy Course. In preparation.

Non-Refereed Education Publications:

M. Price. Connecting Nature of Science Learning and Content Learning. SPARK The AAS Newsletter. June, 2009, Issue 8.

M. Price and P. Siemens. Discovering the mass of an unseen companion star using the Doppler Effect and Newton's formulation of Kepler's third law. Laboratory for non-major introductory astronomy. 2007.

M. Price and P. Siemens. Editing and design of introductory astronomy laboratory manuals. 2007.

Laboratory Manuals:

From 2004 until present extensive writing and editing the astronomy laboratory manuals for Oregon State University's four introductory astronomy courses. Contributing author and editor of:

- *PH104 Descriptive Astronomy Laboratory Manual*
- *PH205 Solar System Laboratory Instructor's Manual*
- *PH206 Stars and Stellar Evolution Laboratory Manual*
- *PH206 Stars and Stellar Evolution Laboratory Instructor's Manual*
- *PH207 Galaxies, Quasars, and Cosmology Laboratory Manual*
- *PH207 Galaxies, Quasars, and Cosmology Laboratory Instructor's Manual*

Contributed also the following specific laboratory activities:

- Making Observations
- Orbit of the Moon
- Mass of Uranus
- Spectral Analysis

Lead editor of the following labs:

- The Hubble Redshift Distance Relation Using CLEA Software
- Finding the Mass of an Unseen Companion

References:

Dr. Larry Flick: Thesis Advisor, Oregon State University, Science and Mathematics Education, 239 Weniger Hall, Corvallis OR 97331-6508 · (541) 737-3664

Dr. Shawn Rowe: Committee Member, Oregon State University, Science and Mathematics Education, 239 Weniger Hall, Corvallis OR 97331-6508 · (541) 737-3664

Dr. Henri Jansen: Dept. Chair Physics, Oregon State University, Department of Physics, 301 Weniger Hall, Corvallis, OR 97331-6507 · 541-737-4631

Dr. Phil Siemens: Committee member, Oregon State University, Department of Physics, 301 Weniger Hall, Corvallis, OR 97331-6507 · 541-343-1343
