

Scott T. Miller

Assistant Professor
Department of Physics
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Appointments

Assistant Professor, 2008-present – Sam Houston State University, Huntsville, Texas

Lecturer, 2002-2008 – the Pennsylvania State University, University Park, Pennsylvania

Instructor, 2000-2002 – University of California at Santa Barbara, Santa Barbara, California

Education

Doctor of Philosophy, Astronomy, 2002, University of Maryland, College Park, Maryland

Dissertation: The Nature and Origin of Diffuse Ionized Gas in the Halos of Nearby Edge-On Galaxies

Advisor: Dr. Sylvain Veilleux

Master of Science, Astronomy, 1995, University of Maryland, College Park, Maryland

Bachelor of Science, Civil Engineering 1991 (with highest honors), Rutgers University, New Brunswick, New Jersey

Bachelor of Arts, Mathematics, 1991 (with honors), Rutgers University, New Brunswick, New Jersey

Research and Teaching Interests

Physics/Astronomy Education Research and Instruction; Active/Collaborative Learning; Teaching with Technology

Refereed Publications

Miller, S. T., Veilleux, S., *Extraplanar Emission-Line Gas in Edge-On Spiral Galaxies. I. Deep Emission-Line Imaging*, 2003, ApJS, 148, 383

Miller, S. T., Veilleux, S., *Extraplanar Emission-Line Gas in Edge-On Spiral Galaxies. II. Optical Spectroscopy*, 2003, ApJ, 592, 79

Veilleux, S., Shopbell, P., **Miller, S.**, *Biconical Outflow in the Seyfert Galaxy NGC 2992*, 2001, AJ, 121, 198

Schlegel, E. M., Petre, R., Colbert, E. J. M., and **Miller, S.**, *A Deep ROSAT HRI Observation of NGC 1313*, 2000, AJ, 120, 2373.

Veilleux, S., Bland-Hawthorn, J., Cecil, G., Tully, R. B., and **Miller, S. T.**, *Galactic-Scale Outflow and Supersonic Ram-Pressure Stripping in the Virgo Cluster Galaxy NGC 4388*, 1999, ApJ, 520, 111.

Suntzeff, N. B., Phillips, M. M., Covarrubias, R., Navarrete, M., Perez, J. J., Guerra, A., Acevedo, M. T., Doyle, L.

R., Harrison, T., Kane, S., Long, K. S., Maza, J., **Miller, S.**, Piatti, A. E., Claria, J. J., Ahumada, A. V., Pritzl, B., and Winkler, P. F., *Optical Light Curve of the Type Ia Supernova 1998bu in M96 and the Supernova Calibration of the Hubble Constant*, 1999, AJ, 117, 1175.

Miller S., Schlegel, E. M., Petre, R., and Colbert, E., *X-ray Properties of NGC 1313: Second Epoch PSPC Observations*, 1998, AJ, 116, 1657.

Non-Refereed Research Publications

Miller, S., Redman, S., *Creating an Instructor Presence in an Online Course at the Expense of Your TA's Life (A Small Price to Pay)*, 2009, BAAS, 213, 462.04

Veilleux, S., **Miller, S.**, *Extraplanar Emission-Line Gas in Edge-On Spiral Galaxies*, 2003, AAO Newsletter, 102, 8.

Miller, S. T., Veilleux, S., *Diffuse Ionized Gas in Edge-On Spiral Galaxies*, 1999, BAAS, 195, 31.04

Schlegel, E. M., Petre, R., Colbert, E. J. M., and **Miller, S.**, *A Deep ROSAT HRI Observation of NGC 1313*, 1999, BAAS, 195, 70.05

Miller, S., Veilleux, S., *A Deep Multi-Line Imaging Survey of Edge-On Spiral Galaxies*, 1999, AAO Newsletter, 88, 4.

Curriculum-Related Publications

Deming, G., Hufnagel, B., **Miller, S.**, Miller, K., Comins, N., Raddick, J., *AstroPortal*, 2008, W. H. Freeman

Miller, S.T., *Introductory Astronomy*, Pennsylvania State University, University Park, PA, 2007 (Note: this online course was developed and published for the entire Penn State System, comprising 26 campuses and 130,000 students across the state.)

McKenzie, D., Adler, C., Ziegler, D., **Miller, S.**, *Companion Website for Astronomy Today*, 2008, Prentice Hall

Wood, D., Terndrup, D., **Miller, S.**, *Instructor's Manual and Test Bank: 21st Century Astronomy*, 2007, W. W. Norton and Company

Miller, S.T. (editor), Penn State Astronomy 11 Laboratory, 2003 – present, Hayden-McNeil Publishing, Inc.

Duncan, T., Holcombe, C., Fauerbach, M., Ziegler, D., Hildreth, S., Harpell, E., Adler, C., **Miller, S.**, *Companion Website for Astronomy: A Beginner's Guide to the Universe*, 2005, Prentice Hall

Miller, S.T., *Active/Cooperative Learning Activities for Introductory Astronomy*, Pennsylvania State University, University Park, PA, 2004 (<http://www.shsu.edu/~stm009/ACL/ACLactivities.html> Note: this website was originally created for the use of Penn State Astronomy faculty teaching introductory astronomy courses.)

Deming, G., **Miller, S.**, and Trasco, J., *Cooperative Learning Activities in Introductory Astronomy for Non-Science Majors*, 1997, University of Maryland, College Park

Deming, G. L., **Miller, S. T.**, Trasco, J. D., *A Sourcebook of Cooperative Learning Activities for Introductory Undergraduate Astronomy for Non-Science Majors*, 1996, BAAS, 188, 15.01

Miller, K. A., **Miller, S. T.**, Supplementary Information for Introductory Astronomy, University of Maryland, College Park, MD, 1996 (<http://www.astro.umd.edu/educationalresources/supplement.html>)

Videos Produced

ASTRO 001 videos – 19 videos produced for an introductory astronomy online course as a means of introducing an instructor presence within an online setting. Links to the videos can be found at:

<http://www.shsu.edu/~stm009/Video/videos.html>, 2008

Other Works in Progress

- Miller, S. T.**, Redman, S., *Creating an Instructor Presence in an Online Course*, paper in preparation
- Miller, S. T.**, Redman, S., *Evaluating the Effectiveness of Video Demonstrations on Performance in an Online Course*, paper in preparation
- Miller, S. T.**, Redman, S., *Does Group Discussion Size Matter in an Online Course?*, paper in preparation
- Nguyen, H., Ching, Y-H., Dileo, M., Kapli, N., Lim, K. Y., **Miller, S.T.**, Grabowski, B., *Facilitating the Community of Inquiry in a Large Online Introductory Astronomy Course*, paper in preparation
- Grigorescu, E., Thanomsing, C., Grabowski, B., Kidvai, K., **Miller, S.T.**, Hsu, Y-C., Kapli, N., Lim, K.Y., *Unobtrusive Measure of Attitude in Online Discussions: Implications for Crafting Discussion Triggers*, paper in preparation
- Kidwai, K., Hsu, Y-C., Redman, S., Lee, H.W., Grigorescu, E., **Miller, S.T.**, *Revising a Large Question Pool for an Astronomy Class: A Collaboration Between Instructional Design Researchers and Astrophysicists*, paper in preparation
- Ching, Y-H., Albayrak, M., Kapli, N., Lim, K.Y., Nguyen, H., Yung, H-I., **Miller, S.T.**, Grabowski, B., *Designing Engaging Web-based General Science Courses for Undergraduate Education*, paper in preparation

Research Grants

- 2008, Schreyer Institute Teaching Support Grant
The effectiveness of active learning modules in an online course (\$8,500)
- 2008, Center for the Integration of Research, Teaching, and Learning (CIRTL)
Determining factors which predict performance in an introductory astronomy course (\$13,000)

Research Presentations

- 213th American Astronomical Society meeting, Long Beach, CA, *Creating an Instructor Presence in an Online Course at the Expense of Your TA's Life (A Small Price to Pay)*, January 2009, Poster presentation
- 13th World conference on E-Learning in Corporate, Government, Healthcare, & Higher Education (E-Learn), Las Vegas, NV, *Revising a Large Question Pool for an Astronomy Class: A Collaboration Between Instructional Design Researchers and Astrophysicists*, November 2008, Oral presentation
- 195th American Astronomical Society meeting, Atlanta, GA, *Diffuse Ionized Gas in Edge-On Spiral Galaxies*, Jan. 2000, Oral presentation
- 188th American Astronomical Society meeting, Madison, WI, *A Sourcebook of Cooperative Learning Activities for Introductory Undergraduate Astronomy for Non-Science Majors*, June 1996, Poster presentation

Invited Presentations

- Astronomy Video Demonstrations as Portable, Personal, & Educational Media*, Teaching and Learning with Technology Symposium, Pennsylvania State University, University Park, PA, March 2008
- Blended Learning Panel: The Evolution of Course Materials and Student Interactions in Three Courses*, Teaching and Learning with Technology Symposium, Pennsylvania State University, University Park, PA, March 2008
- The Search for Other Earths*, 8th Annual Astrofest, Pennsylvania State University, University Park, PA, July 2007
- The Winter Night Sky*, Cub Scout presentation, State College, PA, Dec. 2006

From Earth Looking Outwards, Hubble Observes God's Creations, Church Youth Organization presentation, State College, PA, June 2006

What If the Moon Did Not Exist?, 6th Annual Astrofest, Pennsylvania State University, University Park, PA, July 2005

Worlds beyond Pluto, 5th Annual Astrofest, Pennsylvania State University, University Park, PA, July 2004

Active/Collaborative Learning in Introductory Astronomy, Astronomy Board of Visitors Meeting, Pennsylvania State University, University Park, PA, Oct. 2002

Exploring Lunar Features and the Phases of the Moon, 2nd Annual Science and Technology Day, University of California, Santa Barbara, May 2001

Teaching Experience

Sam Houston State University – Huntsville, Texas

2009, Assistant Professor, Honors Seminar: Big Bang to Humankind (HON 131W, 17 students, team teach)

2008 - present, Assistant Professor, Stars and Galaxies (PHY 134, 38 students)

2008, Assistant Professor, Solar System Astronomy (PHY 133, 100 students)

Pennsylvania State University – University Park, Pennsylvania

2008, Lecturer, Introduction to Astronomy, web-based course (ASTRO 001), web-online

2007, Lecturer, Introduction to Astronomy, web-based course (ASTRO 001), hybrid classroom/web

2004 – present, Lecturer, Introduction to Astronomy (ASTRO 010, 300 students)

2002 – present, Lecturer, Introduction to Astronomy (ASTRO 001, 100 students)

2002 – present, Lecturer, Elementary Astronomy Laboratory (ASTRO 011, 24 students)

2002 – present, Lecturer, Supervised Experience in College Teaching (ASTRO 602, 5 – 10 students) – Teach semester long course for teaching assistants on effective teaching styles and techniques.

University of California, Santa Barbara – Santa Barbara, California

2000, Instructor. Concepts of Physics (NatSci 1A – survey course for non-science majors)

2001, 2002, Instructor. Introductory Physics (Phys 6A, Pre-meds)

2002, Instructor. Introductory Physics (Phys 6B, Pre-meds)

2000, 2001, Instructor. Introductory Physics (Phys 6C, Pre-meds)

2002, Instructor. Basic Physics (Phys 2, Engineering & Physics Majors)

2001, 2002, Instructor. Basic Physics (Phys 4, Engineering & Physics Majors)

2001, Instructor. Honors Seminar (Phys 4H, Engineering & Physics Majors)

University of Maryland – College Park, Maryland

1996, Teaching Assistant. Introduction to Astronomy (ASTR 100 – survey course for non-science majors, 20 students/section, 3 sections)

1993 – 1995, Teaching Assistant. General Astronomy (ASTR 101 – survey course for non-science majors, 20 students/section, 2 sections+lab)

Faculty Professional Service

2009, TA supervisor, Sam Houston State University. Supervise teaching assistants (TAs) in laboratory instruction and grading for the PHY 113/114 astronomy labs.

2002 – 2008, Active/Collaborative Learning Coordinator, Pennsylvania State University. Created active/collaborative learning (A/CL) website for large lecture classes. Facilitate the inclusion of A/CL materials in the introductory astronomy courses.

2002 – 2008, TA supervisor, Pennsylvania State University. Supervise teaching assistants (TAs) in laboratory instruction and grading. Coordinate lab sessions and proctoring duties.

2002 – 2008, First-Year Testing, Counseling and Advising Program (FTCAP), Pennsylvania State University. Advise 20 – 30 entering students each year during the summer.

Faculty Committees, Pennsylvania State University

2002 - 2008, Undergraduate Committee. Assist in curriculum development as well as the evaluation, implementation and revision of the department's undergraduate courses.

2002 - 2008, Telescope Committee. Monitor the needs of various groups which require the use of departmental telescopes.

2002 - 2008, Outreach Committee. Discuss outreach possibilities and ways to increase interest in astronomy in the general public.

2002 - 2008, TA-of-the-year Committee (chair). Evaluate teaching assistants' performance and nominate TA of the year.

2000 – 2002, Physics Department, University of California, Santa Barbara. Supervised TAs in grading of homework and exams. Coordinated discussion and review sessions for large-lecture classes.

Professional Service as a Reviewer

Hester et al., “21st Century Astronomy”, W.W. Norton & Co.
3rd edition, 2009 – detailed review of 2 chapters

Slater & Freedman, “Brief Universe”, W. H. Freeman
1st edition, 2009 – detailed review of 4 chapters

Freedman & Kaufmann, “Universe”, W. H. Freeman
8th edition, 2008 – authored a series of interactive learning activities for 9 chapters to be available on the web.

Chaisson & McMillan, “Astronomy Today”, Prentice Hall
6th edition, 2008 – created two sets of 28 practice quizzes associated with textbook to be available as an online supplement for students.

5th edition, 2005 – detailed review of 28 chapters
review of supplemental CD-ROM material (19 tutorials, 34 Physlet illustrations, and 61 videos)
detailed review of 19 tutorials and associated questions, plus 4 new tutorials.

Comins & Kaufmann, “Discovering the Universe”, W. H. Freeman
8th edition, 2008 – detailed review of 5 chapters

Seeds, “Horizons”, Brooks/Cole Publishing Co.
10th edition, 2008 – comparison of chapters with competing textbook
8th edition, 2004 – pre-review of 3 chapters.

Snow & Stern, W.W. Norton

1st edition (not yet published, 2007) - detailed review of 6 sample chapters from proposed textbook.

Chaisson & McMillan, “**Astronomy: A Beginner’s Guide to the Universe**”, Prentice Hall

5th edition, 2007 – detailed review of 5 chapters

4th edition, 2004 – detailed review of 15 chapters

Hester et al., “**21st Century Astronomy**”, W.W. Norton & Co.

2nd edition, 2007 – detailed review of 7 chapters , created testbank of questions for all 21 Chapters

Schneider & Arny, “**Pathways to Astronomy**”, McGraw-Hill Publishing Company

1st edition (2007) – review of 5 units and overall review of textbook format.

Seeds, “**Foundations of Astronomy**”, Brooks/Cole Publishing Co.

9th edition, 2007 – pre-review of 3 chapters.

Villard, “**Visualizing Astronomy**”, John Wiley & Sons, Inc.

1st edition (unpublished, 2006) – detailed review of 3 sample chapters from proposed textbook.

Deming, “**Your Universe**”, Brooks/Cole Publishing Co.

1st edition (unpublished, 2003) – extensive review of 4 chapters, plus overall review of entire book.

Bennett et al., “**The Essential Cosmic Perspective**”, Addison-Wesley Longman, Inc

2nd edition, 2003 – overall review of book, focusing on one chapter.

Focus Groups:

Use of Multimedia in and out of the Classroom, Digital Commons focus group, Feb. 2008

Review of “The Visualizing Series” of textbooks, John Wiley & Sons, Feb. 2006

Learning Style Assessment Virtual Focus (My Power Learning), Content Connections, April 2006

Research Experience

Research Assistant, University of Maryland, 1996 – 2000, Advisor: Dr. Sylvain Veilleux

Observed ~ 25 galaxies in H α and [N II] λ 6583 and compiled statistically meaningful sample of Diffuse Ionized Gas morphologies. Acquired long-slit spectroscopy and performed emission-line diagnostics of extraplanar gas. Modeled observed spectroscopic emission lines in order to constrain characteristics of the gas and photoionization sources. Over 36 nights observing experience on telescopes ranging from sub-meter up to 4-m class.

Education Research Assistant, University of Maryland, 1995, Advisor: Prof. Grace Deming

Developed new group activities for a variety of class settings which encourage cooperative learning among undergraduate students and improve class participation and attention. Co-authored NSF funded sourcebook which incorporates these activities and is now used in over 200 institutions.

Research Assistant, Laboratory for High-Energy Astrophysics, Goddard Space Flight Center, 1994, Advisors: Dr. Robert Petre and Dr. Eric Schlegel

Analyzed 2 epochs of ROSAT PSPC data of NGC 1313 and new sources discovered therein. Investigated variability and possible nature of sources. Developed a more accurate PSPC point spread function and subtracted from sources, which led to the discovery of yet another source.

Awards and Honors

First Year Student Faculty Recognition Luncheon, Pennsylvania State University, 2007
Award to Promote Teaching Excellence, Department of Astronomy, University of Maryland, 1995.
Edward Fuller Brooks Memorial Award, Rutgers University, 1991
Henry M. Johnson '76 Memorial Scholarship, Rutgers University, 1988 - 1991
Dean's List, Rutgers University, 1987 - 1991
Donald J. Butler Award, Rutgers University, 1990
Edward G. Nawy Award, Rutgers University, 1990
Edward O. Davis Memorial Student Summer Employment Scholarship, Rutgers University, 1990
Edward J. Bloustein D.S.P., Rutgers University, 1990
Garretson Hageman 1968 Memorial Award, Rutgers University, 1989
Class of 1925 Scholarship, Rutgers University, 1986 - 1988
General Honors Program, Rutgers University, 1986 - 1988
Distinguished Scholars Program, Rutgers University, 1986 - 1988

Other Professional Service

2009, Facilitator, Scout Day at SAM, Leadership development event for 15 – 25 girl scouts.
2004 – present, Facilitator, Pre-K Outreach Event. Pre-K outreach activities for 15-25 children and their chaperones.
2004, 2005, 2007, Volunteer, Astrofest, Pennsylvania State University, University Park, PA, July 2005. Annual departmental outreach program for general public astronomy awareness.

Professional Development

Certifications

FINESSE: Faculty Institute for NASA Earth and Space Science Education certification, 18 hours of Professional Development Training, AAS meeting, Long Beach, CA, January 2009
Schreyer Institute for Teaching Excellence certification, Pennsylvania State University, May 2003
University Teaching and Learning Program certification, The Center for Teaching Excellence and The Graduate School of the University of Maryland, April 2000

Workshops/Classes Attended

FINESSE: Faculty Institute for NASA Earth and Space Science Education, Long Beach, CA, January 2009
Ubiquitous Presenter for Active Learning, University of California, San Diego, San Diego, CA, July 2008
Strategies for Teaching Introductory Astronomy, W.H. Freeman publishing company, San Diego, CA, March 2008
Blended Learning Initiative Faculty Academy (BLI 2000), Pennsylvania State University, University Park, PA, Summer 2006. Course focused on the teaching and learning skills necessary to be a successful online instructor.

Blended Learning Initiative Faculty Academy (BLI 1000), Pennsylvania State University, University Park, PA, Spring 2006. Course focused on the design and development of an online course.

Advanced Strategies for Creating a Learner-Centered Introductory College Astronomy Course: A Tier II Workshop, Center for Astronomy Education Teaching Excellence Workshop, Kona, HI, July 2006

ANGEL day III: A Symposium of Faculty Excellence, Pennsylvania State University, University Park, PA, May 2005

Cosmos in the Classroom 2004: A Hands-on Symposium on Teaching Introductory Astronomy, Astronomical Society of the Pacific, Boston, MA, July 2004

Improving the Introductory Astronomy Survey Course for Non-Science Majors Through Active Learning, Center for Astronomy Education Teaching Excellence Workshop, Atlanta, GA, Jan. 2004

Professional Memberships

Astronomical Society of the Pacific (ASP), 2004 – present

American Astronomical Society (AAS), 1996 – present

American Society of Civil Engineers, 1988 - 1993

Tau Beta Pi engineering honor society, 1990 – 1991

Chi Epsilon Civil Engineering society, 1989 – 1991

Phi Beta Kappa honor society, 1990 – 1991

Registrations

Engineering-in-Training - 1992

Scott T. Miller. Composer and Arranger. About Scott Â». ViolaNotes = { \clef alto \relative c' { f4.\pp(\markup {\i{espress.}}\markup {\i{mute}} c8 d4 a4) | %1 b8(fis8~ fis2.) f16(\< a16 b16 dis16) | %2 f1--\fp\<\markup {\i{non vib.}}(~ | % 3 f4 \set harmonicDots = ##t 2~\mp | %4 4) \clef treble fis'4->\fermata\mf\markup {\i{espress.}}\markup {\i{colla perc.}} | % 5 fis4.(dis8) | %6 fis2.~\> | % Scott T Miller download free and listen online.Â Scott T. Miller Midnight At the Duck Pond. (play). (download) 4:12. Scott Miller Why Won't You Give Me Your Love? (play). (download) 3:07. Scott Miller (April 4, 1960 â€“ April 15, 2013) was an American singer, songwriter and guitarist, best known for his work as leader of the 1980s band Game Theory and 1990s band The Loud Family, and as the author of a 2010 book of music criticism. He was described by The New York Times as "a hyperintellectual singer and songwriter who liked to tinker with pop the way a born mathematician tinkers with numbers", having "a shimmery-sweet pop sensibility, in the tradition of Brian Wilson and Alex Chilton."