

# **Astronomy 270 Introduction to Education/Public Outreach in Astronomy Syllabus**

*You are a child of the Universe, no less than the moon and the stars; you have a right to be here. And whether or not it is clear to you, no doubt the Universe is unfolding as it should.* Max Ehrmann

Instructor: Ana M. Larson, PhD, C335 Physics/Astronomy Bldg., [larson@astro.washington.edu](mailto:larson@astro.washington.edu)

Office Hours: Right before class (1:30 – 2:20 pm, M & W)

Course Webpage: <http://www.astro.washington.edu/astro270/>

## **Course Description**

It is assumed that you have had at least Astronomy 101 or 150, and now have a desire to pass along what you have learned to others in an informative and enjoyable way. You will be expected to be confident in the field relating to the topics of your chosen observatory and planetarium programs, and be well enough versed in general astronomy to answer whatever questions might arise (or at least be willing to say "I don't know"!)

Confidence in front of a large crowd and previous training in public speaking are not required, nor are you expected to be totally proficient in computer presentations. Building your skills in giving public talks, teaching groups, managing your audience -- these are some of the things this course is all about.

Most of us shudder at the thought of talking in front of a group, especially where we might be asked unexpected questions or where we might be criticized by knowledgeable members of the audience. The best and probably only way to get beyond the anxiety is to practice, practice, practice. This course will give you a relatively safe audience on which to test your skills and build your confidence. As you advance in your career in astronomy (or any other field!), you may find yourself in tough graduate school and/or job interviews. If you go on in astronomy, you may be required to be part of a journal-club-like group that requires 20-40 minute scientific talks in front of other astronomers. The toughest audience will unquestionably be your dissertation committee; how nice it will be not to worry about how you say it, just what you say! Then, as you become a successful postdoc, you will need to convince other astronomers--many experts in their fields--that your research is the most important thing happening.

## **Student Achievement**

Upon completion of this course, the student will be able to:

### EPO objectives for Planetarium

- Operate the UW Astronomy Department planetarium, including troubleshooting
- Satisfactorily complete quizzes on coordinate systems, stars and constellations, motions of the Earth, the seasons, and phases of the Moon.
- Lead an educational program in the planetarium
  - o Demonstrate basic knowledge of coordinate systems, stars and constellations, and motions of the Earth
  - o Confidently manage the groups to whom the presentations are made
  - o Practice good questioning strategies
  - o Include different organizational patterns and hands-on activities within presentation
- Objectively critique other student presentations

### EPO objectives for Jacobsen Observatory

- Give the history of the Jacobsen Observatory
- Put together a Power-point Presentation on chosen topic with lecture hand-out
- Confidently give a presentation on an astronomical topic, using good speaker techniques
- Objectively critique other student presentations

### EPO objectives: Individually Designed Projects

- Research, design, construct poster or display exhibit for TJO
- Research, design, construct poster display for 2nd floor A-wing
- Visit a local school or group/club

### **Point Distribution and Due Dates**

<b>Item</b>	<b>Points</b>	<b>Due Date</b>
First-day questionnaire and short PPT presentation	20	1-Oct
Quiz Ch. 1 & 2 of Introduction to the Celestial Sphere	10	12-Oct
Quiz Ch. 3 of Introduction to the Celestial Sphere	10	19-Oct
Quiz Ch. 4 of Introduction to the Celestial Sphere	10	26-Oct
Quiz Ch. 5 of Introduction to the Celestial Sphere	10	2-Nov
Quiz Ch. 6 of Introduction to the Celestial Sphere	10	9-Nov
Planetarium equipment competency	20	various
Night sky knowledge	10	various
TJO history quiz	10	16-Nov
Classroom management quiz	30	30-Nov
<i>One of the following (peer review):</i>		
PowerPoint draft (TJO choice)	20	
Planetarium program outline	20	
<i>One of the following during classtime</i>		
Practice PPT talk for TJO	50	
Practice planetarium program	50	
<i>One of the following:</i>		
Scientific talk at TJO October 3, 17 or November 7	75	
Planetarium presentation December 11 (final exam period)	75	
Presentation handout	10	
Peer critiques (2 pts ea)* 50	50	
*50 of the total points must come from peer review		
Total	345	

## Grading:

Percent	Grade	Percent	Grade
95	4.0	75	2.0
90	3.5	70	1.5
85	3.0	65	1.0
80	2.5	60	0.7

## Reading and References:

- An Amateur Astronomer's Guide to the Celestial Sphere, William Millar, 1st ed (Cambridge, 2006)  
(Text)
- Beyond the Blue Horizon, Myths & Legends of the Sun, Moon, Stars, & Planets, Dr. E. C. Krupp, 1st ed (Oxford, 1991)
- Planetarium Activities for Student Success, Vols. 1 – 13, various (Learning Technologies, Inc.)
- A Walk through the Heavens, A Guide to Stars and Constellations and their Legends, Heifetz and Tirion, 3rd ed (Cambridge, 2004)
- A Walk through the Southern Sky, A Guide to Stars and Constellations and their Legends, Heifetz and Tirion, 1st ed (Cambridge, 2000)
- Skyways Astronomy Handbook for Teachers, Mary Lou Whitehorne (RASC, 2003)
- The Real Reason for Seasons, Sun-Earth Connections, Grades 6-8, NASA GEMS (Lawrence Hall of Science)
- Sky Phenomena, A Guide to Naked-eye Observation of the Stars, Norman Davidson, Rev.Ed. (Lindisfarne Books, 2004)
- Skylore from Planet Earth: stories from around the world...ORION, Dayle L. Brown (AuthorHouse, 2004)
- Where We Are in Space and Time (Project Star), Philip M. Sadler, Project Director (Harvard Smithsonian Center for Astrophysics, 1990)
- Constellation plates A-G and J-P for STAR Activities
- TIPS on Developing and Presenting Interdisciplinary Planetarium Programs, Great Lakes Planetarium Association, David Hoffman, ed.
- TIPS for Preparing and Presenting School Programs, Great Lakes Planetarium Association, Marilyn Baczynski, ed, 1996
- TIPS Humor in the Planetarium, Great Lakes Planetarium Association, 1998
- TIPS How to Make Planetariums [sic] more Accommodating and Accessible to Visitors with Disabilities, Noreen Grice, Editor, 2nd ed, Great Lakes Planetarium Association

Please check on-line links as well. References will be updated periodically.