

Physics 313 Course Information

- General** Physics 313 is a 3 credit-hour lecture course to introduce students to the major concepts and findings of astrophysics. The course is team-taught by 4 professors and will cover topics like solar and stellar physics, nucleosynthesis in the universe, galactic structure and cosmology. The course is for students with some background in Physics who want to learn more about the applications of Physics to the phenomena observed in the universe. The course consists of 2 weekly lectures (including one midterm test), homework assignments, and a project (with oral presentation and written report) in lieu of the Final Exam.
- Prerequisite** PHYS 232N; previous or concurrent enrollment in PHYS323 – Modern Physics – strongly recommended
- Lectures** Mondays and Wednesday, 2:30 p.m. – 3:45 pm, room 303 OCNPS
- WebSite** <http://www.odu.edu/~skuhn/PHYS313/Home313.html>
- Required Text** None. However, the following books are recommended:
- An Introduction to Modern Astrophysics, by B.W. Carroll and D.A. Ostlie, Pearson/AW, 2007; ISBN-10: 0805304029 (this is the "big orange book" that covers "everything" and a lot more than we can cover in a 1-semester course)
 - An Invitation to Astrophysics, by T. Padmanabhan, World Scientific, 2006; ISBN: 981-256-687-2 (paperback)
 - Astrophysics in a Nutshell, by Dan Maoz, Princeton University Press, 2007; ISBN-10: 0-691-12584-8
- Faculty**
- Dr. Sebastian Kuhn (coordinator)**
<http://www.odu.edu/~skuhn/>
- Dr. Stephen Bültmann**
<http://www.odu.edu/~sbueltma/Welcome.html>
- Dr. Moskov Amarian**
<http://www.lions.odu.edu/~mamaryan/>
- Dr. Charles Hyde-Wright**
<http://www.physics.odu.edu/~hyde/chw.htm>

Syllabus	<p>After an introductory class, we will spend 5-8 sessions each on the following topics:</p> <p>Stellar Astrophysics Interaction of light and matter Stellar atmospheres and interior Stellar evolution and pulsation</p> <p>Stellar End States Supernovae, white dwarfs and neutron stars General Relativity and black holes</p> <p>Nuclear Astrophysics Nucleosynthesis in stars and the big bang Neutrinos and cosmic rays</p> <p>Galaxies Types and evolution of galaxies Large-scale structure of the universe</p> <p>Cosmology Big Bang and inflation Cosmic microwave background Dark matter and dark energy</p>
Course Requirements	<p>Class participation, homework (roughly once a week), one midterm test and a class project (oral presentation of 10 min and written report of 9 pages or less) as Final Exam. For the project, you must choose a topic and register it with S. Bültmann before the beginning of Spring Break. You will have one of the 4 instructors as “advisor” for the project – a first draft is due to that advisor by April 1.</p>
Grades	<p>Your final grade will be based on homework (30%), Midterm (20%) and Project (50% for oral and written part combined).</p>
Honor Code	<p>All submissions for this course must be based on your own work - you have to cite all sources used and may not copy existing texts or other student's solutions. Keep in mind the University policy: Any official sanction for cheating, including the assignment of a grade of F for a quiz or for a course as a penalty for cheating, will appear on the student's permanent academic transcript.</p>
