AST 100 Astronomy Today
Seminar designed to introduce students to the excite-
ment of modern astronomy, focusing on the most
recent discoveries, as reported in the media. The
course provides sufficient scientific background to
enable students to understand the impact of these dis-
coveries. 1 credit

AST 101-E Introduction to Astronomy
Description of planets, stars, galaxies, black holes, pul-
sars, quasars, supernovae, and white dwarfs. Man’s
place in the cosmos. Cosmological and cosmogonical
theories. Two hours of lecture and one hour of recip-
itation per week. Students with better science prepara-
tion are encouraged to take AST 203. Not for major
credit. Not for credit in addition to AST 203. Pre-
requisite: Satisfaction of entry skill in mathematics
requirement (Skill 1) or satisfactory completion of D.E.C.
3 credits

AST 105-E Introduction to the Solar System
A general survey of present knowledge of the planets,
satellites, interplanetary medium, comets, asteroids,
and outer regions of the sun. Begins with an histori-
ical introduction and discussion of the methods of sci-
ence. Emphasizes current NASA deep-space explo-
ration missions and other modern astronomical
methods. Not for major credit. Not for credit in addi-
tion to AST 205. 3 credits

AST 112 Astronomy Laboratory
An introduction to observational activities in astro-
momy. Students make astronomical measurements
using simple instruments such as a quadrant, cross-
staff, spectrometer, and telescope; analyze measure-
ments; examine how quantities of interest and their
erors are derived from the measurements and how
they are properly reported. Not for major credit. Pre-
or Co-requisite: AST 101 or 105 or 248
1 credit

AST 200 Current Astronomical Research at Stony Brook
Seminar designed to introduce students to astronomi-
cal research currently underway at Stony Brook. Fac-
ulty actively engaged in cutting-edge research
using facilities such as the Hubble space telescope, the
CHANDRA X-Ray Observatory, and the Keck and
Gemini telescopes, give presentations on their own
research. Appropriate for students considering under-
graduate research in astronomy as well as students interested
in current astronomy. 1 credit

AST 203-E Astronomy
A survey of the physical nature of the universe for the
student with some background in physics and mathe-
matics. May not be taken for credit in addition to AST
101. An optional observing session is held one even-
ing per week. Pre-
requisite: PHY 125 or 131/133 or 141
4 credits

AST 205 Introduction to Planetary
Sciences
An introduction to the solar system for the student
with a background in mathematics or physical sci-
ences. A survey of the planets, comets, asteroids, and
interplanetary medium, based upon the latest scientific
discoveries. Not for credit in addition to AST 105.
Pre-
requisites: PHY 125 or 131/133 or 141
3 credits

AST 248-H The Search for Life in the
Universe
A study of the role of science in modern society
through investigation of the question: Does life exist
elsewhere in the universe? Topics include a review of
the astronomical and biological settings; the origin
of life on the earth and possibly elsewhere; the evolu-
tion of life and the development of intelligence and tech-
nology. Also discussed are the ramifications of the
development of life and intelligence for the atmos-
pheric and the biosphere. Pre-
requisite: One D.E.C. category E course
3 credits

AST 277 Computation for Physics and
Astronomy Majors
[Effective Fall 2005]
An introduction to computing on UNIX/Linux com-
puters. Fundamentals of using UNIX/Linux to write
computer programs for numerical algorithms to solve
computational physics and astronomy problems. Assignments are carried out in a high-level compiler
programming language such as Fortran 90 or C++ and
require extensive use of SINC site computers outside
the classroom. This course is offered as both AST 277
and PHY 277.
Pre-
requisites: PHY 132, or PHY 142, or PHY 126 and
127
3 credits

AST 287 Introductory Research in
Astronomy
Independent research under the supervision of a fac-
ulty member, at a level appropriate for lower-division
students. May be repeated.
Pre-
requisites: Permission of instructor and departmen-
tal research coordinator
Advisory Prerequisites: U1 or U2 standing; one AST
course
0-2 credits

AST 301-H Collisions in the Solar System
A discussion of the evidence that comet and asteroid
impacts have played a significant part in the evolution
of the Earth, and other planets of the solar system, as
well as an assessment of the actual and perceived haz-
ard posed by terrestrial impacts and discussion of
what can be done about it. The course follows an inter-
disciplinary approach and is not for major credit.
Pre-
requisites: A lower-division 3-4 credit AST course;
MAT 125 or 131 or 141 or AMS 151; PHY 121/125 or
125 or 121/133 or 141
3 credits

AST 304 The Universe
The origin, evolution, and ultimate fate of the universe.
The course begins with a historical approach with
emphasis on the evolution of cosmological ideas from
geocentric universes to the Big Bang. Consideration of
the evolution of the universe from the earliest
moments after the Big Bang to the distant future,
including the formation of the galaxies, stars, and plan-
ets. Not for major credit.
Pre-
requisites: A lower-division 3-4 credit AST course;
MAT 125 or 131 or 141 or AMS 151; PHY 121/125 or
125 or 121/133 or 141
3 credits

AST 341 Stars and Radiation
An introduction to, and development of, a firm physi-
cal understanding of the observed properties of
stars. Topics include the structure of the interior and
atmosphere of stars, the transfer of energy by radia-
tion in plasmas, the evolution of stars, and the end
stages of stellar evolution, including white dwarfs,
neutron stars, black holes and supernovae, with care-
ful attention to the comparison of the predictions with
observations.
Pre-
requisites: AST 203; PHY 251/252; MAT 205 or 205
or 211 or AMS 261
3 credits

AST 345 Undergraduate Research in
Astronomy
Student participation in faculty-directed research pro-
jects. Pre-
requisite: Permission of instructor
0-1 credits

AST 346 Galaxies
An introduction to the properties of galaxies, includ-
ing the Milky Way and others. Examination of the
physical processes that govern the stars, dust, and
gas in galaxies. Stellar constituents of galaxies, equi-
libria of collisionless systems, gas dynamics, and
radiative processes.
Pre-
requisites: AST 203; PHY 251/252; MAT 205 or 205
or 211 or AMS 261
3 credits

AST 347 Cosmology
An introduction to physical cosmology. Examination of
the physical properties that govern the galaxies and
intergalactic matter in the universe. Expansion of the
universe and the Friedmann equations, microwave
background variation, thermal history of the universe,
and nucleosynthesis.
Pre-
requisites: AST 203; PHY 251/252; MAT 205 or 205
or 211 or AMS 261
3 credits

AST 443 Observational Techniques in
Optical Astronomy
An introduction to modern astronomical instrumenta-
tion and data handling and to the use of telescopes.
Emphasis on techniques and equipment appropriate
for wavelengths shorter than one micron. Extensive
laboratory and observing exercises are required.
Pre-
requisite: AST 203
5 credits

AST 447 Senior Tutorial in Astronomy
Independent readings in advanced topics to be
arranged prior to the beginning of the semester.
Weekly conferences are held with a faculty member.
May be repeated once.
Pre-
requisites: U4 standing; permission of instructor
1-2 credits

AST 475 Teaching Practicum in Astronomy
Supervision of laboratory or recitation sections under
the close guidance of the course instructor. Includes
regular meetings with the instructor for purposes of
planning and evaluation; supplementary reading in
preparation for laboratory or recitation sessions; and
opportunities to make oral presentations, provide indi-
vidual or innovative instruction, and reinforce previ-
ously acquired knowledge.
Pre-
requisites: U4 standing; permission of instructor
3 credits, S/U grading

AST 487 Senior Research in Astronomy
Under the supervision of a faculty member, a major in
the department may conduct research for academic
credit. A research proposal must be prepared by the
student and submitted to the department chairperson
for approval before the beginning of the semester in
which credit is to be given. A written report must be
submitted before the end of the semester. May be
repeated.
Pre-
requisite: Permission of instructor
0-6 credits, S/U grading

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344