Linwood Holton Governor's School
Astronomy I and II, NAS 131/132 Syllabus
Fall 2017

Welcome to Astronomy!

I am delighted that you have decided to take this course. Astronomy continues to enjoy a golden age of discovery and exploration. With new technologies and innovative theoretical insights, the study of the universe has never been more exciting. In this course you will learn of these new adventures in the study of the oldest science. Not only will you discover new facts but you will grow to appreciate the cosmos that surrounds us. You will grow to understand those mysterious phenomena of the heavens. You will complete projects such as building your own telescope to guide your understanding and knowledge of the universe. Astronomy will emphasize a study of the planets and their moons, as well as solar system debris. There will also be an emphasis on the historical aspects of astronomy and the instruments used in its study. Once again welcome to NAS 131/132 Astronomy!
Dr. Rapp

Instructor: **Dr. Steve Rapp**

Location: **Linwood Holton Governor's School at the Southwest Virginia Higher Education Center, second floor, One Partnership Circle, P.O. Box 1987, Abingdon, VA 24210**

Web Site: **http://www.hgs.k12.va.us/ or https://srapphgs.coursesites.com/**

Phone: **276-619-4329** **Email:** **srapp@hgs.k12.va.us** **Fax:** **276-619-4309**

Textbook: ***Astronomy Today*** **8th edition by Chaisson & McMillan, ISBN-10: 0321901673 • ISBN-13: 9780321901675**

Minimum Computer Requirements:
Windows 7 or 8, 4 Gig of RAM, 120 Gig of available space on your hard drive, cable modem if at home (T1 line preferable), Internet Explorer 8.0 (the later the version the better)

Other Materials:

Scientific Calculator, Microsoft Word 2003 or later, Microsoft Excel 2003 or later, ILink, Starry Night DVD, and other materials to be announced at a later date

Office Hours: M-F 1:00-2:00 pm

Course Delivery:

This course will be taught via the Internet with daily on-line discussion sessions. Tests will be administered on-line and homework will be collected via email.

How to Succeed in This Course:

First, make sure you turn in all assignments on time. The due dates are found in the syllabus and in grade-book. Second, prepare for tests even though they are open book. Out-lining each chapter is an excellent study aid. Third, make sure lab reports are written in the proper lab report format. Fourth, consult the links below to help you develop study skills that you need to succeed.

How to Read Your Textbook More Effectively

Time Management

Test Taking

How to Study

Grade Determination:

Tests: Seven tests will be given and they will be open book/note.
Lab work: Thirty lab activities will be assigned. A word-processed lab report for each activity must be turned in by the due date. Information on how to do a lab report and a sample lab report are found in Coursesite. Two to three class projects will be assigned. Your final average will be determined by adding points acquired on tests and points acquired on lab reports and then dividing by the total points possible. Grades on each assignment will be recorded in Pageout. Students may access their grades online at anytime.

Event Schedule:

For detailed information on weekly schedule and assignments visit: https://srapphgs.coursesites.com/.

Policies:

Academic Dishonesty: Collaboration on examinations, in class assignments, and homework assignments is forbidden except where specifically specified as "Team" activities. In general, one team may not collaborate with another team on "Team" activities. Students violating this policy will be subject to disciplinary action and possibly a failing grade in the class.

Class Attendance: *While ALHGS does provide flexibility of where the students take the class (exception for assessment days), we support the home school's policy for attendance.*

Assignments: ALL ASSIGNMENTS SHOULD BE COMPLETED ON TIME AND TURNED IN ON THE DUE DATE. ASSIGNMENTS WILL BE ACCEPTED UP TO 3 DAYS LATE, BUT THERE WILL BE A PENALTY OF 10 POINTS FOR EVERY DAY LATE. THIS MEANS THE MAXIMUM SCORE THAT CAN BE RECEIVED IS 70%. AFTER 3 DAYS A GRADE OF ZERO WILL BE RECORDED. MAKE SURE YOU EMAIL YOUR ASSIGNMENT FAR ENOUGH AHEAD SO THAT IT REACHES ME BY THE DEADLINE.

Grading System: The regular university grading scale will be used:
90-100 = A; 80-89 = B; 70-79 = C; 60-69 = D; 59 or below = F.

Objectives of the Course

- **Excite the student about astronomy.**
- **Provide a foundation in astronomy fundamentals.**
- **Cultivate problem-solving skills.**
- **Allow the student through the study of astronomy to appreciate new developments in the world of science.**
- **To enhance the student's ability to make informed judgments concerning national science initiatives.**

Class Guidelines

1. Be on time for class.
2. Do your own work.
3. Don't miss my class to do something in another class, like making up a test for example.
4. Email me if you know you are going to be absent.
5. Participate in class.
6. Be prepared for tests. If you miss the day before the test is scheduled you will still be required to take the test on the scheduled day unless an emergency has occurred. You are to receive NO OUTSIDE HELP.
7. Email all lab reports as an attached word document to me at srapp@hgs.k12.va.us.

Curriculum Framework

- **Charting the Heavens**
- **The Copernican Revolution**
- **Radiation**
- **Spectroscopy**
- **Telescopes**
- **The Solar System**
- **Earth, Our Home in Space**
- **The Moon and Mercury**
- **Venus**
- **Mars**
- **Jupiter**
- **Saturn**

- **Uranus, Neptune, and Pluto**
- **Solar System Debris**
- **The Formation of the Solar System**
- **Measuring the Stars: Giants, Dwarfs, and the Main Sequence**
- **The Interstellar Medium: Gas and Dust Among the Stars**
- **Star Formation: A Traumatic Birth**
- **Stellar Evolution: From Middle Age to Death**
- **Stellar Explosions: Novae, Supernovae, and Formations of the Heavy Elements**
- **Neutron Stars and Black Holes: Strange States of Matter**
- **The Milky Way Galaxy: A Grand Design**
- **Galaxies: Building Blocks of the Universe**
- **Galaxies and Dark Matter: The Large-Scale Structure of the Universe**
- **Cosmology: The Big Bang and the Fate of the Universe**
- **The Early Universe: Toward the Beginning of Time**
- **Life in the Universe: Are We Alone?**

TENTATIVE LABORATORY REPORT DUE DATES

Laboratory Activities	Due Date
Lab 1.0 Starry Night Tutorial	Aug. 17
Lab 1.1 Celestial Coordinates	Aug. 24
Lab 2.0 Heliocentric to Geocentric Model	Aug. 31
Lab 3.0 Diurnal Motion	Sept. 5
Lab 4.0 Discovering Spectra	Sept. 8
Lab 5.0 Space Based Astronomy	Sept. 12
Lab 5.1 Observing with Celestron First Scope- Galileoscope	Sept. 15
Lab 6.0 Planets of the Solar System	Sept. 19
Lab 7.0 The Year and Seasons	Sept. 22
Lab 8.0 The Moon	Sept. 26
Lab 9.0 Orbits and Configurations of Venus, Planets	Sept. 29
Lab 10.0 Exploring Mars	Oct. 3
Lab 11.0 The Moons of Jupiter, Saturn, and Mars	Oct. 6
Lab 12.0 Satellite Playground	Oct. 10
Lab 13.0 Size and Scale of the Solar System	Oct. 13
Lab 14.0 Small Solar System Bodies	Oct. 17
Lab 15.0 The Solar Neighborhood	Oct. 20
Lab 16.0 The Sun, Our Parent Star	Oct. 24
Lab 17.0 Inverse Square Law	Oct. 27
Lab 18.0 Our Home Galaxy, The Milky Way	Oct. 31
Lab 19.0 The Hertzsprung-Russel Diagram	Nov. 3
Lab 20.0 The Death of Stars	Nov.8
Lab 21.0 and 22.0 Black Holes and Neutron Stars	Nov. 13
Lab 23.0 Galaxy Classification	Nov. 14
Lab 24.0 Structure in the Nearby Universe	Nov.16
Lab 25.0 Exploring Active Galaxies	Nov.21
Lab 26.0 Investigating the Cosmos	Nov. 27
Lab 27.0 Cosmic Background Radiation and Supernova	Nov. 31
Lab 28.0 Looking for E.T.	Dec. 5 ?
Observing with NASA ?	TBA
Galaxy Zoo	TBA

TENTATIVE TEST SCHEDULE

Chapters 1-4	Sept. 8
Chapters 5-8	Sept. 27
Chapters 9-12	Oct. 16
Chapters 13-16	Oct. 27
Chapters 17-20	Nov. 10
Chapters 21-24	Nov. 21
Chapters 25-28	Dec. 5 ?

Emergency Information:

A. Linwood Holton Governor's School

Information & Instructions for Individuals with Disabilities:

Students may request academic accommodations for identified disabilities through HGS's Main Office (276- 619-4326). We will evaluate the request, consult with appropriate officials from the student's home school, and develop a plan that outlines necessary and reasonable accommodations to be followed. All correspondence will be kept confidential.
Emergency Statement:

In the event of a major interruption of technological connectivity or actual emergency affecting the student's school, the offices of HGS, or the community college through which a student is receiving his/her credit - course requirements, class meeting times or schedules, assignment deadlines, and grading schemes are subject to changes that may include alternative delivery methods, alternative methods of interaction with the instructor, alternate class materials, changes to class membership, a revised attendance policy; a revised semester calendar and/or grading scheme, etc..

For more general information about plans for dealing with such catastrophic events or emergencies, please consult the following resources:
- The College Website
- Your School's Emergency notification and response plan
- The Holton Governor's School Web-Page (http://www.hgs.k12.va.us/)

Should such a situation arise, HGS's Administrator will work closely with the appropriate school division and college personnel to resolve it as soon as possible. Students will be contacted through available forms of communication and given specific directions as to how they will proceed to complete their course work, how timelines will be adjusted, etc.