ASTR 1020: Stellar and Galactic Astronomy

I. Course Description

This is an introductory course in the astronomy of stars and galaxies, and physical cosmology. Topics include the history of astronomy, astronomical coordinates, Newton’s laws, gravitation, properties of light, kinds of telescopes and their uses, the Sun, stars and stellar properties, nebulae, star clusters, galaxies and galactic distributions, pulsars, quasars, neutron stars, black holes, and cosmology.

Credit Hours: 4 credits (3 class hours, 3 lab hours)

Prerequisites:

II. Course Outcomes and Topics

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

- Discuss the history of astronomy and its relationship to modern science.
- Explain how electromagnetic radiation and stellar spectra carry information from the stars.
- Illustrate how the tools of astronomy, including telescopes, CCD collectors, photometers, and spectrographs, are used.
- Discuss the properties of the sun, a typical star.
- Examine the properties of the interstellar medium, and its relation to the birth, evolution and death of stars.
- Discuss the properties of black holes, neutron stars, galaxies, and dark matter.
- Discuss the origin and fate of the universe according to modern cosmology.
Topics

- Foundations of Astronomy
- Birth of modern science
- Radiation and spectroscopy
- Telescopes
- The sun
- Red giants and white dwarfs
- The interstellar medium
- Star formation
- Star evolution
- Star explosions
- Neutron stars and black holes
- The milky way galaxy
- Normal and active galaxies
- Galaxies and dark matter
- Cosmology
- The early universe
- Life in the universe

III. Required Materials

Textbook: Choose from one of the following:


Free software: Stellarium (www.stellarium.org). This free, open source planetarium is installed on the computers in the library, but it is highly recommended that you install it on your personal computer.

IV. Course Policies

Attendance
Each instructor will provide information regarding his/her attendance policy. Failure to attend class will result in a final course grade of “FA” or “FN” (see explanation below), depending on the individual instructor’s course policy.

FA= Failure, attendance related (unofficial withdrawal). Last recorded date of attendance required. Per TBR policy, a student who does not officially drop or withdraw from a course, but receives a failing grade, will receive an “FA” if the last day of attendance was earlier than two-thirds into the part-of-term. That date equates to the last day to withdraw from the course.
FN= Failure, never attended class (unofficial withdrawal).

Please be advised that instructors may have a more specific class policy.
Method of Assessment/Evaluation: (Subject to change at instructor’s discretion)

Course average
- Average of four unit tests = 37.5% - 75%
- Average of the highest ten lab reports = 25%
- Final Examination = 0 - 37.5%

The course letter grade is determined according to the following point ranges:
0-59 = F, 60-69 = D, 70-79 = C, 80-89 = B, and 90-100 = A.

Safety:
The instructor will review the regulations regarding safety in lab classes. You must turn in a signed copy of the regulations, and you should keep a copy for your records.

Communication Policy
It is the student’s responsibility to check D2L and their MyNSCC email on a regular basis. These are the official communication channels between the college and students. Students are responsible for the information communicated through these channels, as well as for the information mentioned in class, regardless of whether the student is physically present in the classroom.

Attending class and participating in the various in-class activities is valuable to the learning process. The student is expected to attend each class meeting.

V. Classroom Behavior

Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions.

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College. Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

Please be aware that children are not allowed in class or unattended on campus.

VI. Academic Dishonesty (Honor Code)

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. “Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words” (A Writer’s Reference 331). Academic
dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature.
In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty, your grade in the course, or the assignment or examination affected by the alleged academic misconduct may be lowered to any extent, including a grade of “F”.

VII. ADA Statement

Nashville State Technical Community College complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Disability Coordinator at 615-353-3721. Such services must have proof of documentation that is not over three years old.

NOTE: This syllabus is meant simply as a guide and overview of the course outcomes, topics, classroom policies, and standard college policies. Some items are subject to change or revision at the instructor’s discretion. Each instructor will further clarify their criteria for grading, classroom procedures, attendance, exams and dates, etc.