



CEDAR CREST
COLLEGE

Introduction to Astronomy

GSC 103 (4 credits)
Winter 2021-2022

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Office Hours: By Appointment
Class Dates: 12/17/2021 – 1/16/2022

Class Lecture Format: This is an asynchronous online course for this semester.

Laboratory Format: All labs will be conducted online, using various simulations.

Course Description:

Welcome to GSC 103. This is a one-semester general education astronomy course with an online laboratory. This course provides a descriptive survey of the heavens, including the constellations and stars, the sun and our planetary system, the celestial sphere, our galaxy, binary and variable stars, nebulae, the elements of astrophysics, cosmology, and some history of astronomy. Laboratory exercises are an integral part of the course, but will be used for more than providing students with exposure to concepts in astronomy. The lab will be used to teach students how to apply the scientific method and approach teaching the students how to apply the scientific method, when gathering and analyzing data to describe the world around us.

Text Book: Fraknoi, Andrew, David Morrison, and Sidney C. Wolff, "OpenStax: Astronomy". (2016)

Laboratory Manual: PDF files will be provided online for each lab by instructor

Other Materials:

- Scientific Calculator
- Computer, access to internet, Microsoft Word, Excel, and Teams

Technology Support Resources:

Please refer to the Information Technology Support Center website and the IT Help Desk for Cedar Crest College computer, software, and other technology resources available to students. The IT Support Center resources are available at the following website:

<https://cedarcrest.teamdynamix.com/TDClient/Home/>

The IT Help Desk is located at the Bridge of the Student Success Center on the main floor of Cressman Library (610-606-4635 and helpdesk@cedarcrest.edu).

Course Objectives:

Upon successful completion of this course, the students should be able to:

- Identify the physical laws and principles governing the natural universe.
- Solve elementary mathematical problems dealing with astronomical principles.
- Explain the interrelationships of the development of astronomical knowledge to the development of our modern technological society.
- Investigate and/or verify their astronomical knowledge in the with astronomy simulations in lab.
- View the universe through a simulated telescope to actually “see and touch” the universe.
- Demonstrate critical thinking and quantitative reasoning skills related to astronomy and the description of astronomical objects.
- Demonstrate competence in making detailed observations in the laboratory and in the collection and evaluation of experimental data.
- Acquire fundamental scientific knowledge and skills required for future courses.
- Apply the scientific method when looking at simple research questions and problems.
- Perform laboratory measurements accordance to instructions.
- Interpret and report laboratory results in an acceptable form which includes a discussion of the relationship between experiment and theory.

A) Course Structure

The course has been broken up into the following three components: lectures, problem solving, and laboratory sessions. Each of these has been designed to try and facilitate your understanding of the course material.

Lecture periods: The lecture periods, refer to the time you will need to watch video power point lectures that will be released to you daily. These video lectures will be covering topics listed in your course schedule. The lecture will cover the main ideas discussed in the text, but here is not enough time to cover all the minute details that are mentioned in the reading. Therefore, it is essential that you read the chapter, work through the online assignments and resources, and work out any suggested sample problems. Every individual has a particular schedule and style for reading and working out the problems. Being that this course is offered online, there is a lot of

flexibility for you to set a schedule that works best for you. This is left up to you, the individual, as long as the work gets completed.

Problem Solving: Approximately once a day, you will hand in the homework problems as assigned by me. These problems will be assigned online, but for some assignments, you can work out solutions on paper and submit them to me electronically. Solutions to the problems will be posted on-line, so you must learn how to access these on your own. 5 quizzes will be given to you throughout the course of this class. The quiz will be assigned online through CANVAS as a take-home assignment. The quiz will be similar in style to the homework problems that were given to you. I expect and encourage student interaction with each other as well as with me. When something is not clear, please contact me and let me know so that I can clarify and increase your understanding. Chances are that if you don't understand a problem, others in the class don't either. For further help, you can contact me via TEXT, and we can discuss any issues you have over the phone or via TEAMS.

Laboratory Sessions: Your laboratory sessions will be used to complete an online experiment as provided to you by the instructor. The lab exercises will help you connect what you are learning in the classroom to what you observe in the physical world. They will introduce you to the basic laboratory techniques used to acquire and analyze data. It is such an important part of the course because it teaches you how to take observations and properly survey the world around you. Even though the course is offered online, there are data measurements you will perform on your own, either via simulation or using materials readily available to you at home. Making observations is an important part of any discipline, but astronomy is ideal for teaching this process. For every lab, you will submit a lab report electronically, which will be graded and returned to you. This process will be discussed further in an email that will be sent to you prior to the start of class.

B) Homework

- Read ahead in the text.
- Complete the assigned tutorials made available to you online.
- Work through the relevant examples that are suggested to you.
- Complete assigned problems and submit them in a timely fashion.
- Ask questions if anything is unclear.

C) Completing Homework and Quiz Assignments

You should feel free to work together on your assigned homework problems. You can get help from your friends or physics tutors that will be made available to you. However, it is important to make sure that you understand the help that is given to you and then write up your own work. At times, I will release a small quiz through CANVAS for you to complete. The quizzes ARE NOT to be completed as a group. main purpose for the homework and the quizzes is for you to practice solving problems.

Assessment:

The successful achievement of the objectives stated above is intended to result in the outcomes of greater critical thinking ability, quantitative reasoning skills, and scientific literacy. The means for assessing success at achieving the objectives, there will be testing involving explanations of concepts and quantitative problem solutions applying these concepts. The course assessment will be a subset of homework problems, quizzes, written examinations, and participation in discussion questions. The laboratory experience will be assessed by evaluating a series of written exercises on various laboratory topics as well as performance on lab assignments.

Grading Policy:

You will have homework assignments that will be posted on CANVAS as the course progresses. This includes discussion questions and homework assignments. Instructions on how to complete the assignments will be provided with each assignment. You will also be provided short quizzes at certain times that are similar to the homework. Instructions on how to complete each quiz will be given as well. Two tests will be administered using CANVAS, one toward the middle of the semester and one during the final exam period. A cumulative final exam will not be given at the end of the semester. You will be required to post and participate in the discussions on the Discussion Board as per the instructions that will be provided to you. The course grade will be broken up as follows:

Hour Test 1	20 %
Hour Test 2	20 %
Discussion Questions	20 %
Homework Questions	10 %
Quizzes	10 %
Laboratory Work	20 %

Course Grading Scale

A = 93% or higher	B + = 87% - 89%	C + = 77% - 79%	D + = 67% - 69%
A - = 90% - 92%	B = 83% - 86%	C = 73% - 76%	D = 60% - 66%
	B - = 80% - 82%	C + = 70% - 72%	F < 60%

Attendance & COVID-19:

There is no required attendance for class, and everything needed to successfully complete the course will be available through CANVAS. However, an asynchronous set of online lectures and sessions are the primary avenue in which information from the course will be disseminated. Therefore, not using CANVAS properly or completing your assignments in a timely fashion will probably reduce your effectiveness in completing the coursework and obtaining a high grade. In all cases, it is the student's responsibility to be aware of the scheduled assignments and/or exams. Material that is handed in late will be downgraded accordingly.

Any student experiencing symptoms of COVID-19, with a suspected or positive diagnosis of COVID-19, or with known exposure to COVID-19 is not permitted to attend class in person. Students who are absent for such reasons may choose to participate as their health permits in synchronous online class meetings. Class absences due to COVID-19 symptoms, diagnosis, or exposure will not be penalized. Students should contact their instructor if they have questions regarding how to access required academic material (such as lectures) and complete assignments during such absences.

Absence notifications from the Dean of Students are not required for these absences. Students should refer to the [Communicable Disease Policy](#) for guidance regarding when they may return to class after a COVID-19-related absence.

COVID-19 Symptoms, Exposure, or Diagnosis:

Students are required to monitor their symptoms daily through Healthy Roster. Traditional students who are experiencing symptoms or believe they may have been exposed to COVID-19 should call Student Health Services for guidance. SAGE students should contact their medical provider for guidance. Any student with a positive diagnosis of COVID-19 or with known exposure to COVID-19 must report that fact to Health Services (610-606-4640 or 610-437-4471, ext. 4640; <https://www.cedarcrest.edu/healthservices/>).

Face Coverings:

Face coverings must be worn by all students on campus when in the presence of others and in public settings where other social distancing measures are difficult to maintain, such as common and shared spaces, classrooms, meeting rooms, hallways or bathrooms. Face coverings must cover the nose and mouth, be secured to the head, and may include either fabric masks or plastic face shields. Students are expected to have a clean face covering each day. The college will strictly enforce the wearing of face coverings. Students without a face covering are not permitted to attend in-person class meetings and will be asked to leave by the instructor.

In addition, students must abide by all health and safety practices described in the [College's Health & Safety Plan for Resuming In-Person Instruction](#). Failure to follow requirements for reporting COVID-19 diagnosis or exposure, for face-covering use, or for other practices outlined in the Health and Safety plan will be addressed through the College's Community Standards of Social Conduct process.

Delivery of Instruction:

This course will provide instruction to students through online means. The lecture and the lab will be delivered completely online. Students will be able to demonstrate the learning outcomes of the courses through various online activities. Please refer to the College's Information Technology Support Center for information regarding required general computing resources to access online instruction, including Canvas (online Learning Management System) and Internet access (<https://www.cedarcrest.edu/infotech/>). Students who need to use online instruction temporarily should alert the instructor to their specific needs. The instructor will work with the students on accommodating them.

Students who choose to participate in online instruction for all of their face-to-face or hybrid courses must complete the Online Instruction Intent Form in the Canvas course COVID-19 Resources for Students.

Tutoring and Academic Support Resources:

The Student Success Center, located on the main floor of Cressman Library, offers writing and tutoring resources to all Cedar Crest students with the goals of assisting students in achieving academic success and becoming effective, independent learners. Smarthinking, on-line tutoring service, is also available to all Cedar Crest students. For information about all available tutoring services and scheduling information, please refer to both the Professional Tutoring and Peer Tutoring and Support Resources pages on MyCedarCrest, located under the “Academic Services” page in the “Current Students” Section. The Student Success Center may also be contacted at 610-606-4628 or advising@cedarcrest.edu.

Cedar Crest College Honor Philosophy:

The Cedar Crest College Honor Philosophy states that students shall uphold community standards for academic and social behavior to preserve a learning environment dedicated to personal and academic excellence. It is based upon the principle that, as a self-governing body, students have the ability to create an atmosphere of trust and support. Within this environment, individuals are empowered to make their own decisions, develop personal regard for the system under which they live, and achieve a sense of integrity and judgment that will guide them through life.

Cedar Crest College Diversity Statement:

Founded under the mission to expand women’s access to higher-education, Cedar Crest College values difference in a diverse, inclusive, and equitable learning environment. The College is committed to educational excellence, leadership, and civic engagement in a pluralistic society. We thus embrace an inclusive community that brings together students, faculty, and staff of different racial and multi-racial, ethnic and multi-ethnic, gender and sexually diverse, religious and nonreligious, economic, and national identities and ages. Our educational mission includes students who have been historically underrepresented in higher education, such as students of color, first-generation college students, international students, students of varying ability or disability, and other identities.

Classroom Protocol:

Cedar Crest College maintains a classroom and learning environment dedicated to scholarly, artistic, and professional inquiry. The College’s community of learning is founded upon the intellectual freedom of students and faculty in pursuit of knowledge and understanding. Such an environment depends upon the insights of the liberal-arts disciplines, as well as a respect for the global diversity of viewpoints and cultural backgrounds.

The college expects students to conduct themselves in a manner that best realizes their own and other students' education, as consistent with the Cedar Crest College Honor Code. Appropriate classroom behavior includes, but is not limited to, the expectations for students: to attend and be prepared for all classes, to arrive and leave on time, to treat the faculty members and other students with respect, to refrain from any activities within the classroom that do not directly pertain to the business of the class, to use language that is respectful and non-abusive, and to otherwise refrain from any behavior that disrupts or jeopardizes the learning environment as determined by the instructor and departmental guidelines, as appropriate to the educational goals of the learning environment.

Academic Integrity:

Academic integrity and ethical behavior provide the foundations of the Cedar Crest scholarly community and the basis for our learning environment. Cedar Crest College expects students to set a high standard for themselves to be personally and intellectually honest and to ensure that other students do the same. This standard applies to all academic work (oral, written or visual) completed as part of a Cedar Crest education. Cedar Crest College reserves the right to define, in its sole discretion, what constitutes academic misconduct. Examples of academic misconduct include, but are not limited to, cheating, plagiarism, collusion, falsification, sabotage, and impersonation. This list is not exhaustive, and other acts in violation of the Cedar Crest Honor Code or academic standards of integrity may be deemed academic misconduct by an instructor or by the college. Students who violate these standards are subject to sanctions imposed by the course instructor, department chair, the Provost's office, or the Board of Trustees. When an instructor determines that a student has engaged in academic misconduct, the instructor is obligated to report the incident to the Provost's office. Reports are recorded in the Provost's office, which will notify the student of their receipt and the College's policies regarding academic misconduct. For more information, please refer to the Student Handbook, Section IV: Community Standards for Academic Conduct.

Turn It In Citation Verification/Plagiarism Detection:

Cedar Crest College uses a citation verification service [Turn It In, ([turnitin.com](https://www.turnitin.com))] to help teach proper citation techniques and to ensure the integrity of written academic work. By enrolling in this course, students agree to the submission of their written assignments to such a citation verification service, the use of which is subject to the Terms of Use posted on the provider's website. Written work submitted to a citation verification service will become part of its database for the purposes of future citation verification.

Class Cancellation Policy:

For notification of the College closing, for inclement weather or other emergencies, refer to Cedar Crest's e2Campus system, the Inclement Weather Hotline at 610-606-4629, or the College's MyCedarCrest website for notification. If it becomes necessary for a faculty member to cancel class, the faculty member will notify the students via email and through CANVAS. If a class is cancelled, the faculty member will provide students with an alternate plan for delivering the course material.

Resources for Students with Disabilities:

Cedar Crest College is committed to ensuring students with disabilities are welcomed as a part of our diverse community and that they have equal access to participate in all programs and services offered by the College, in accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act. If you have a disability and require accommodations to access any portion of the design, instruction, or experiences that comprise this course or any other campus activity, please contact Disability Resources (610-606-4628; advising@cedarcrest.edu; Student Success Center in Cressman Library) to set up an appointment to discuss your need for accommodations. Please note that accommodations are not retroactive and may require advance notice to implement. Please refer to the Disability Resources page on MyCedarCrest, located under the “Academic Services” page in the “Current Students” Section.

Accommodations will not be provided unless the instructor receives an official Cedar Crest College Accommodations Letter. If you are already receiving accommodations, please remember to have a confidential conversation (in person, phone call, email, or online conferencing) with your instructor to discuss the approved accommodations you intend to use for this course and how they may be implemented.

Recording:

Classes may be recorded by instructors in both in-person and online formats. Students will be notified in advance if classes are being recorded. These recordings may be made available through the course website in Canvas (the College’s Learning Management System). These recordings are used for educational purposes only and may not be shared with anyone else or posted anywhere online (outside of the Canvas course site). The dissemination of class recordings other than in Canvas is only permitted with the speaker’s (including any identifiable student on the recording) explicit written permission.

Student recordings of class must have prior instructor approval and are prohibited except for the purposes of an individual student making the recording to achieve course learning outcomes (e.g., a student studying lecture material to prepare for an exam). Other students must be notified in advance if classes are being recorded; therefore, students should receive permission from an instructor to record class and the instructor will provide notice to other students that the course is being recorded. Such student recordings may not be disseminated or shared without explicit instructor approval in addition to the explicit written permission of any speaker (including any identifiable student on the recording). Students with approved accommodations may also be permitted to record lectures in this course in order to be provided meaningful access to the lecture material and to the educational experience and such requests are handled in accordance with the College’s policies and procedures.

Note: Recordings may be prohibited, at the instructor’s sole discretion, during portions of lectures or discussions that may involve personal, self-disclosure by other students. Instructors may also prohibit recordings to ensure the academic integrity of assignments (e.g., during reviews of exam answers). Please see your instructor if you have any questions or concerns about this policy.