

*This syllabus is provided as a general informational guide. Some of the information may vary depending on the specific course section and instructor. Different sections of the same course may require different textbooks. Verify the section specific textbook information in the CUNY's Academic Course Schedule Web Page. Modifications of the grading system presented here will be communicated by the instructors of the sections when they meet the class.*

**BOROUGH OF MANHATTAN COMMUNITY COLLEGE**  
The City University of New York  
Department of Science

**Title of Course: ASTRONOMY: GENERAL THEORY**

**Class Hours: 3**

**AST 108**

**Laboratory Hours per Week: 0**

**Semester:**

**Instructor Information:**

**Credits: 3**

**Course Description:**

This course is an introductory survey course of topics in astronomical theory, especially for students who are not science-oriented. A selected number of basic topics in astronomy are carefully examined and interpreted. The relevance of the scientist and his/her work to the lives of non-scientists is continually examined.

**Prerequisites: MAT 041 or MAT 051, ENG 088, ACR 094, ESL 062**

**Corequisites: AST 109**

<b>Course Student Learning Outcomes (Students will be able to...)</b>	<b>Measurements (means of assessment for student learning outcomes listed in first column)</b>
1. Gather, interpret, and assess information from a variety of sources and points of view.	Graded homework assignments on the topics of planetary, stellar, galactic, extragalactic astronomy and others will measure the gathering, interpretation, and assessing of information and points of view from their textbook and online sources.
2. Evaluate evidence and arguments critically or analytically.	Graded homework assignments in planetary, stellar, galactic, extragalactic astronomy and others will measure how students evaluate evidence and arguments critically or analytically.
3. Produce well-reasoned written or oral arguments using evidence to support conclusions.	Graded research project on e.g. galaxy classification or other topic will measure how students produce well-reasoned written arguments using evidence to support conclusions.
4. Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the scientific world.	Graded homework and exam problems and questions on planetary, stellar, galactic, extragalactic astronomy and others will measure how students identify and apply the fundamental concepts and methods of astronomy.

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5. Demonstrate how tools of science, mathematics, technology, or formal analysis can be used to analyze problems and develop solutions.	Graded homework and exam problems and questions will include analysis of e.g. where to site a telescope; how to organize a classification system (of e.g. galaxies, stars or planets); how to determine the content of distant objects when no sample-return is possible (e.g. stars); etc.
6. Articulate and evaluate the empirical evidence supporting a scientific or formal theory.	Graded research project on e.g. galaxy classification or other topic will require students to enumerate and evaluate the empirical evidence for the relevant theory.

Below are the college's general education learning outcomes, the outcomes that are checked in the left-hand column indicate goals that will be covered and assessed in this course.

	<b>General Education Learning Outcomes:</b>	<b>Measurements (means of assessment for general education goals listed in first column):</b>
<input checked="" type="checkbox"/>	<b>Communication Skills-</b> Students will be able to write, read, listen and speak critically and effectively.	Lab write-ups, and/or homework, and/or exams
<input checked="" type="checkbox"/>	<b>Quantitative Reasoning-</b> Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems.	Lab write-ups, and/or homework, and/or exams
<input checked="" type="checkbox"/>	<b>Scientific Reasoning-</b> Students will be able to apply the concepts and methods of the natural sciences.	Lab write-ups, and/or homework, and/or exams

**Required Text:**

**Title:** *THE ESSENTIAL COSMIC PERSPECTIVE*, 8<sup>th</sup> Edition

**Authors:** Bennett, Donahue, Schneider, Voit

**Publisher:** Pearson

**ISBN: 978-0-13-444643-1**

**0-13-444643-7**

**Other Resources:**

**Use of Technology (If Applicable):**

**Evaluation and Requirements of Students:**

Homework/quizzes 20%

Research project 20%

Exams 60%

Total 100%

**Class Participation**

Participation in the academic activity of each course is a significant component of the learning process and plays a major role in determining overall student academic achievement. Academic activities may include, but are not limited to, attending class, submitting assignments, engaging in in-class or online activities, taking exams, and/or participating in group work. Each instructor

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has the right to establish their own class participation policy, and it is each student's responsibility to be familiar with and follow the participation policies for each course.

BMCC is committed to the health and well-being of all students. It is common for everyone to seek assistance at some point in their life, and there are free and confidential services on campus that can help.

**Single Stop** [www.bmcc.cuny.edu/singlestop](http://www.bmcc.cuny.edu/singlestop), room S230, 212-220-8195. If you are having problems with food or housing insecurity, finances, health insurance or anything else that might get in the way of your studies at BMCC, come by the Single Stop Office for advice and assistance. Assistance is also available through the Office of Student Affairs, S350, 212-220-8130.

**Counseling Center** [www.bmcc.cuny.edu/counseling](http://www.bmcc.cuny.edu/counseling), room S343, 212-220-8140. Counselors assist students in addressing psychological and adjustment issues (i.e., depression, anxiety, and relationships) and can help with stress, time management and more. Counselors are available for walk-in visits.

**Office of Compliance and Diversity** [www.bmcc.cuny.edu/aac](http://www.bmcc.cuny.edu/aac), room S701, 212-220-1236. BMCC is committed to promoting a diverse and inclusive learning environment free of unlawful discrimination/harassment, including sexual harassment, where all students are treated fairly. For information about BMCC's policies and resources, or to request additional assistance in this area, please visit or call the office, or email [olevy@bmcc.cuny.edu](mailto:olevy@bmcc.cuny.edu), or [twade@bmcc.cuny.edu](mailto:twade@bmcc.cuny.edu). If you need immediate assistance, please contact BMCC Public safety at 212-220-8080.

**Office of Accessibility** [www.bmcc.cuny.edu/accessibility](http://www.bmcc.cuny.edu/accessibility), room N360 (accessible entrance: 77 Harrison Street), 212-220-8180. This office collaborates with students who have documented disabilities, to coordinate support services, reasonable accommodations, and programs that enable equal access to education and college life. To request an accommodation due to a documented disability, please visit or call the office.

### **BMCC Policy on Plagiarism and Academic Integrity Statement**

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's Web site, [www.bmcc.cuny.edu](http://www.bmcc.cuny.edu). For further information on integrity and behavior, please consult the college bulletin (also available online).

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<b>WEEK</b>	<b>TOPIC</b>	<b>CHAPTERS</b>
1	A Modern View of the Universe Discovering the Universe for Yourself	1, 2
2	The Science of Astronomy Understanding Motion, Energy and Gravity	3,4
3	Light: The Cosmic Messenger	5
4	Formation of Planetary Systems: Our Solar System and Beyond	6
5	Earth and the Terrestrial Worlds	7
6	Jovian Planet Systems	8
7	Asteroids, Comets, and Dwarf Planets: Their Nature, Orbits, and Impacts	9
8	Our Star - The Sun	11
9	Surveying the Stars	12
10	Star Stuff	13
11	The Bizarre Stellar Graveyard	14
12	Our Galaxy - The Milky Way	15
13	A Universe of Galaxies	16
14	The Birth of the Universe Dark Matter, Dark Energy, and the Fate of the Universe	17, 18
15	Finals Week	