

Spring 2020

## **PHYS 202-102: Introductory Astronomy and Cosmology (Revised for Remote Learning)**

George Georgiou

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### **Recommended Citation**

Georgiou, George, "PHYS 202-102: Introductory Astronomy and Cosmology (Revised for Remote Learning)" (2020). *Physics Syllabi*. 194.

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## Introductory Astronomy and Cosmology

Phys 202–102 Spring 2020

Wednesdays, 6-8:50 p.m. Kupf. 211

**NJIT is cancelling face-to face classes for the remainder of the Spring semester**

**All classes are online. We will use WEBEX (details at [IST.NJIT.EDU/WEBEX/](http://IST.NJIT.EDU/WEBEX/))**

**Slides will be sent by email before class Wednesdays 6PM. I will send out a conference email before class.**

**Exams will probably be sponsored by PROCTORU.**

### Instructor

Dr. George E. Georgiou

Microelectronics Research Center, Room 207 (in bridge between FMH and ECE)

[george.e.georgiou@njit.edu](mailto:george.e.georgiou@njit.edu) (preferred contact method)

OFFICE HOURS: send email

### Textbook

**Primary on which class is based:**

“Astronomy” by A.Fraknoi, D.Morrison, S.Wolf ...

Downloadable Open Stax text: <https://openstax.org/details/books/astronomy>

**Optional paper textbook: (if do not like reading e-books)**

Jeffrey Bennett, Megan Donahue, Nicholas Schneider, and Mark Voit. *The Cosmic Perspective Fundamentals*, 2<sup>nd</sup> Ed. Pearson Education, Inc., United States of America, 2015. – but ANY EDITION will work for reading material

**Additional Reading (optional but may be interesting):**

Neil deGrasse Tyson, J. Richard Gott and Michael A. Strauss, *Welcome to the Universe, an Astrophysical Tour*, Princeton University Press (2016)

### Grade

**Your final grade will be based upon class participation (10%), three examinations (20% each), and one Final Examination (30%).** The examinations will be administered on the following dates.

|                          |                                 |                 |
|--------------------------|---------------------------------|-----------------|
| First Examination        | Wednesday, February 5, 2020     | (20%)           |
| Second Examination       | Wednesday, February 26, 2020    | (20%)           |
| <b>Third Examination</b> | <b>Wednesday, April 1, 2020</b> | <b>CANCELED</b> |
| Fourth Examination       | Wednesday, April 29, 2020       | (20%)           |
| Final Examination        | Finals Week (probably 5/13)     | (30%)           |

There are no make-up examinations without a valid reason. The following table will determine your final grade.

|                   |           |
|-------------------|-----------|
| 80% to 100%       | A         |
| 75% to 79%        | B+        |
| 70% to 74%        | B         |
| <b>60% to 69%</b> | <b>C+</b> |
| <b>50% to 59%</b> | <b>C</b>  |
| 40% to 49%        | D         |
| 0% to 39%         | F         |

Introductory Astronomy and Cosmology (Phys 202) and Introductory Astronomy and Cosmology Laboratory (Phys 202A) are two separate courses. You can be registered for either one of these courses without being registered for the other course.

### Academic Integrity

Any student who is disruptive in the classroom or cheats during an examination, will be in violation of the Academic Honor Code and will be reported to the Dean of Student Services.

## Syllabus (Chapters for reading refer to OpenStax Download text)

|           |         |  |
|-----------|---------|--|
| Wednesday | 1/22    | Observing the Sky (Chapters One & Two)<br>Orbits and Gravity (Chapter Three)                       |
| Wednesday | 1/29    | Earth, Moon, and Sky (Chapter Four)<br>Radiation and Spectra (Chapter Five)                        |
| Wednesday | 2/5     | Astronomical Instruments (Chapter Six)<br>First Examination  |
| Wednesday | 2/12    | Introduction to the Solar System (Chapter Seven)<br>Earth and Other Cratered Worlds (Chs. 8 and 9) |
| Wednesday | 2/19    | Venus and Mars (Chapter Ten)<br>Giant Planets, Rings, Moons (Chapters 11 and 12)                   |
| Wednesday | 2/26    | Comets, Asteroids, Samples (Chapters 13 and 14)<br>Second Examination                              |
| Wednesday | 3/4     | The Sun (Chapters 15 and 16)<br>Starlight and Stars (Chapters 17 and 18)                           |
| Wednesday | 3/11    | Distances. Gas & Dust in Space (Ch. 19 and 20)<br>Star & Planet Formation (Chapter 21)             |
| Wednesday | 3/18    | NO CLASS – Spring Break  |
| Wednesday | 3/25    | NO CLASS   |
| Wednesday | 4/1     | Star & Planet Formation (Chapter 21)<br>Stars' Adolescence to Old Age (Chapter 22)                 |
| Wednesday | 4/8     | Death of Stars (Chapter 23)<br>Black Holes, Curved Space-Time (Chapter 24)                         |
| Wednesday | 4/15    | The Milky Way Galaxy (Chapter 25)<br>Galaxies (Chapter 26)   |
| Wednesday | 4/22    | QSOs, Black holes, Galaxy Evolution (Chs. 27 & 28)<br>The Big Bang (Chapter Twenty-nine)           |
| Wednesday | 4/29    | Fourth Examination<br>Review of Chapters 1-29 – LAST DAY OF CLASS                                  |
| Wed/Thurs | 6-7 May | Reading Days   |
| Wednesday | 5/13    | Final Exam(all inclusive)  |