

**Physics 375 Course Syllabus
Spring 2020****Course Description:**

Briefly, cosmology is the astrophysical study of the history, structure, and dynamics of the Universe. The root of the word is from the Greek *cosmos* meaning a complex and orderly system; the opposite of chaos. What we'll find is that, to paraphrase Terrence McKenna, *the universe is not only stranger than you suppose, it is stranger than you can suppose*. And that's part of the fun of cosmology

Text:

Introduction to Cosmology, 2nd Ed Barbara Ryden. This text is quite good and should serve as a sufficient reference. However, there are a couple other texts you might want to look for more in depth analysis on some sections. These are:

Peacock, J.A., *Cosmological Physics*

Liddle, A., *An Introduction to Modern Cosmology*

Dodelson, S. *Modern Cosmology*

Instructor:

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Web Page:

<https://d21.depaul.edu/> (*D2L site*) Useful information will be found on this page, including assignments and homework hints. Please note that the reading quizzes, due dates, etc., are all to be found on the *D2L site*, you need to look at it daily.

Office Hours:

MW 3:00 – 4:00 p.m.

TTH 1:30 – 3:30 p.m..

and by appointment.

I will be in my office during office hours. I will also be in my office at other times and as long as my office door is opened you are welcomed. The one exception is the hour before class time. You are strongly encouraged to take advantage of office hours.

Course Requirements

Letter grades will be assigned as follows

A- to A	90 – 100 %
B- to B+	75 – 89 %
C- to C+	65 – 74 %
D- to D+	55 – 64 %
F	0 – 55 %

Your grade will consist of the following 4 factors weighted as shown. More information on each factor is provided below.

Homework	20%
Reading Quizzes	5%
Mid-Term exam	25%
Final* (cumulative)	30%
Presentation/Final Paper	20%

*Final must be passed to receive a passing grade.

Course Components**Lecture:**

Lecture in the course is minimized. Instead, peer-peer learning and worksheets are used. The worksheets take the place of the traditional note taking, and an engaged pedagogy is used to cover the material. To get the most out of the class, the reading assignments and active participation during class time are required.

Homework. Homework problems will be assigned regularly. All homework problems assigned will be graded. No credit will be given for simply writing down an answer, even if the answer is correct. That is, *show your work*. **No late homework will be accepted.**

Homework will be graded using a two-pass system. During the first pass, the following rubric will be used:

- **0 points** for no initial effort
- **1 - 4 points** for a poor initial effort
- **4 - 8 points** for a fair effort involving modest conceptual errors or a good effort involving serious conceptual errors
- **8 - 12 points** a good effort with modest conceptual errors and/or math errors or a fair effort with minor errors
- **12 - 16 points** A good effort with only a few minor errors

- **16 - 20 points** a good effort with correct results *and* reasoning

Note that effort is rewarded as much as results. Solutions will be posted after the homework is turned in. The graded homework will be returned with no comments during the first pass.

Unless you received a zero on your initial effort, you *may* then submit corrections to the just graded homework at the beginning of the next class. (Note: The entire original homework must be submitted even if you have not corrected all the problems). The corrections should be on a different page(s). The re-submitted homework is graded as above with the following modifications:

- 1) The correction(s) must explicitly state what the error in reasoning or math (i.e. it cannot just be a paraphrase of the solution) was/were and **why** that error was made. Each line on the original homework should be numbered and the specific line(s) (by number) in which the error(s) occurred should be referenced in the corrections. In addition, specific reference must be made to the worksheet or text pages which cover the material with which the problem deals.
- 2) The final score on a problem cannot exceed the initial score by more than 8 points

Each problem is worth 20 points with partial credit awarded by

- Application of the correct physical principle.
- Deductive reasoning from the general physical principle to the specific problem at hand.
- Mathematical manipulation.
- Numerical accuracy.
- Clarity of presentation.

Almost all homework will be begun in class as part of the in class assignments. It is anticipated that a lot of progress towards completing the assignment can be done in class. You are expected to work with other students in the class and take advantage of the instructor. However each student will turn in their own assignments. Some assignments will be more involved and may require a more formal presentation. Details will be provided as appropriate.

Reading Quizzes. Reading assignments will be regularly assigned from the class notes. Lecture is minimized in this course, so **it is essential that you complete the reading on time and that you read as thoroughly as can.** Associated with each reading assignment, there will be reading quizzes on *D2L*. The quizzes will usually be due about an hour before the class meets.

In-class Exams. There will be a mid term in-class exam. The exam will be closed book and closed notes. The exam will have an attached information sheet that may contain useful formulas, constants, etc. The exam schedule is listed in the schedule.

Final Exam. A cumulative final exam is scheduled for **March 18** from 2:30 – 4:45 p.m.. The date and time will not be changed, please plan accordingly.

Presentation and Paper. A literature review of current issues in cosmology will be required in the form of a presentation and formal written paper. The topic will be chosen from a list provided by me. The topic must be chosen by the end of the 5th week. By the end of the 7th week a bibliography will be required, and the presentation and final paper will be due the 10th week of the quarter. Details about the format of the paper will be provided when the bibliography is turned in.

Other Information

Academic Integrity. DePaul University is a learning community that fosters the pursuit of knowledge and the transmission of ideas within a context that emphasizes a sense of responsibility for oneself, for others and for society at large. Violations of academic integrity, in any of their forms, are, therefore, detrimental to the values of DePaul, to the students' own development as responsible members of society, and to the pursuit of knowledge and the transmission of ideas. Violations include but are not limited to the following categories: cheating; plagiarism; fabrication; falsification or sabotage of research data; destruction or misuse of the university's academic resources; alteration or falsification of academic records; and academic misconduct. Conduct that is punishable under the Academic Integrity Policy could result in additional disciplinary actions by other university officials and possible civil or criminal prosecution. Please refer to your Student Handbook or visit Academic Integrity at DePaul University (<http://academicintegrity.depaul.edu>) for further details.

Center of Students with Disabilities. Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling you to access accommodations and support services to assist your success. There are two office locations:

- Loop Campus – Lewis Center suite 1420 – (312) 362-8002
- Lincoln Park Campus – Student Center suite 370 – (773) 325-1677

Students who are registered with the Center for Students with Disabilities are also invited to contact me privately to discuss how I may assist in facilitating the accommodations you will use in this course. This is best done early in the term. Our conversation will remain confidential to the extent possible.

Tentative topics:

Topic	Chapter	Week
What is Cosmology	1 – 2	1
The Geometry of the Universe	3 & 4	2 & 3
Topic for Paper	N/A	3
The Stuff of the Universe	5	3 – 5
Mid Term Exam		5
The History and Future of the Universe	6,8, 10	5–7
Bibliography Due		7
The Formation of Structure	7,11 & 12*	7–9
Presentations and Final Paper		10
Final, March 18	2:30–4:45	

**time permitting*