

ASTR4020/6020 – ASTROPHYSICS II

Fall 2017

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Web Page: www.physast.uga.edu/~loris/astr4020/prob.html
Class Hours: Tu/Th 11:00 AM – 12:15 PM in Physics 327
Office Hours: M 4:00 PM – 5:00 PM; Tuesday 2:30 – 3:30 PM – (or by appointment)
Call Number: ASTR 4020: 34536
 ASTR 6020: 34537

Textbook:

An Introduction to Modern Astrophysics – 2nd ed. – B.W. Carroll and D.A. Ostlie
(Pearson: Addison Wesley)

This course is an upper-level astronomy course dealing with modern astrophysical theories of galactic structure and kinematics, galaxies, and large-scale structures in the Universe. We will also cover black holes and a tiny bit of general relativity. I assume you have at least two years of Calculus and at least one semester of upper level Mechanics, Electromagnetic theory, and Thermodynamics in your background. ASTR 4010 is recommended, but not required for this course.

Grading: 2 to 4 homework problems will be assigned each week usually on the Tuesday class of that week. They are due the following Tuesday. You may work with others in the class on the homework, but, if you choose to do so, you must note on the assignment who you worked with. There is no penalty for working with others, but I will assign the same exact grade to all the people who worked on the problem together. There will be three midterms; on Tuesday, September 19th, on Tuesday, October 17th, and on Tuesday, November 14th. The homework will constitute 15% of your grade, the midterms 20% each for a total of 60%, and the final 25%. If you miss an exam, you will have to schedule a makeup exam within one week of the original exam date. For every week that any homework assignment is late, ten points will be deducted from the final score for that homework.

If you are taking the class for 6020 credit, extra problems will be assigned weekly.

Letter grades at the end of the semester will be assigned using the following scale:

A	corresponds to 92.00 – 100.00
A-	corresponds to 88.00 – 91.99
B+	corresponds to 84.00 – 87.99
B	corresponds to 80.00 – 83.99
B-	corresponds to 76.00 – 79.99
C+	corresponds to 72.00 – 75.99
C	corresponds to 68.00 – 71.99

C-	corresponds to 60.00 – 67.99
D	corresponds to 50.00 – 59.99
F	corresponds to less than 50.00

All students are responsible for knowing, understanding, and abiding by the academic honesty policy of the University of Georgia, which can be found online at <http://honesty.uga.edu>

If you have any questions about this policy and how it pertains to your work in this course, please ask me for clarification.

You are responsible for all topics discussed in class, as well as class announcements. Although attendance is not mandatory, it is in your best interest to attend every class and absence from class does not excuse you from the above responsibility.

If you have any questions or concerns about this syllabus, please contact me.

Tentative Class Schedule & Readings:

Week of Topic/Readings

August 13 – introduction – a bit about tensors and GR – Ch. 17.1

August 20 – metrics, black holes – Chapter 17.2-17.3

August 27 – close binary systems – accretion disks – Ch. 18.1-18.2

Sept. 3 – interacting binaries – Type Ia SN – compact objects in binaries – Ch. 18.3-18.6

Sept. 10 – star counts – galactic structure – Ch. 24.1

First midterm: September 26 – Ch. 17 & 18

Sept. 17 – midterm exam – galactic structure – Ch. 24.2

Sept. 24 – kinematics – Ch. 24.3

Oct. 1 – the Galactic Center – Ch. 24.4

Oct. 8 – the Hubble Sequence – spiral and irregular galaxies – Ch. 25.1-25.2

Second midterm: October 17 – Ch. 24

Oct. 15 – midterm exam – spiral structure – Ch. 25.3

Withdrawal Deadline – October 19

Oct. 22 – spiral structure – interacting galaxies – Ch. 25.3-26.1

Oct. 29 – the formation of galaxies – Ch. 26.2-26.3

Nov. 5 – the extragalactic distance scale – Ch. 27.1

Third midterm: November 14 – Ch. 25 & 26

Nov. 12 – midterm; expansion of the Universe – Ch. 27.2-27.3

Nov. 19 – Thanksgiving Break

Nov. 26 – active galaxies and quasars – Ch. 28.1-28.4 – LAST WEEK OF CLASS

Dec. 3 – Tuesday, Dec. 5th is a Friday class schedule – no ASTR 4020 classes this week

FINAL – Final Exam, Cumulative, Thursday, Dec. 7, noon – 3 PM