

19. Cataclysmic Astronomy

19.1. *Novae (Read on Your Own)*

19.2. *Supernovae*

19.2.1. Describe the observable properties of supernovae.

19.2.2. What is a "Type I" supernova?

19.2.3. What is a "Type II" supernova?

19.2.4. What are alpha-capture reactions? What is so special about the element "Iron-56"?

19.2.5. What is the difference between "s-process" and "r-process" neutron capture? What purpose do these reactions serve?

19.3. *Neutron Stars and Pulsars*

19.3.1. What is the theoretical basis for the existence of neutron stars?

19.3.2. What observational evidence exists for neutron stars?

19.3.3. Describe the discovery of pulsars.

19.3.4. What evidence supports the idea that pulsars are rapidly rotating neutron stars?

19.4. *Black Holes*

19.4.1. Describe the theoretical predictions for black holes.

19.4.2. Describe the "structure" of a black hole.

19.4.3. What observational evidence supports the existence of black holes?

19.5. *Examples of Beasts in the Cosmic Zoo (Not on the Test)*

Test Yourself . . .

Chapter Summary: Read it. If you find any part to be confusing and/or not explained within the Chapter, ask your instructor for help at the next class meeting or during office hours. When you read the Chapter Summary I would like you to picture yourself explaining the content of the Chapter to someone else in your own words while using the Summary only as a prompt. If you find that you stumble along, pause to refer back to the Chapter, or merely repeat the Chapter Summary verbatim, then you should consider that to be a sign that you have not learned the content of the Chapter.

Inquiries: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19

Summary Questions: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Applying your Knowledge: none