The Structure of the Milky Way

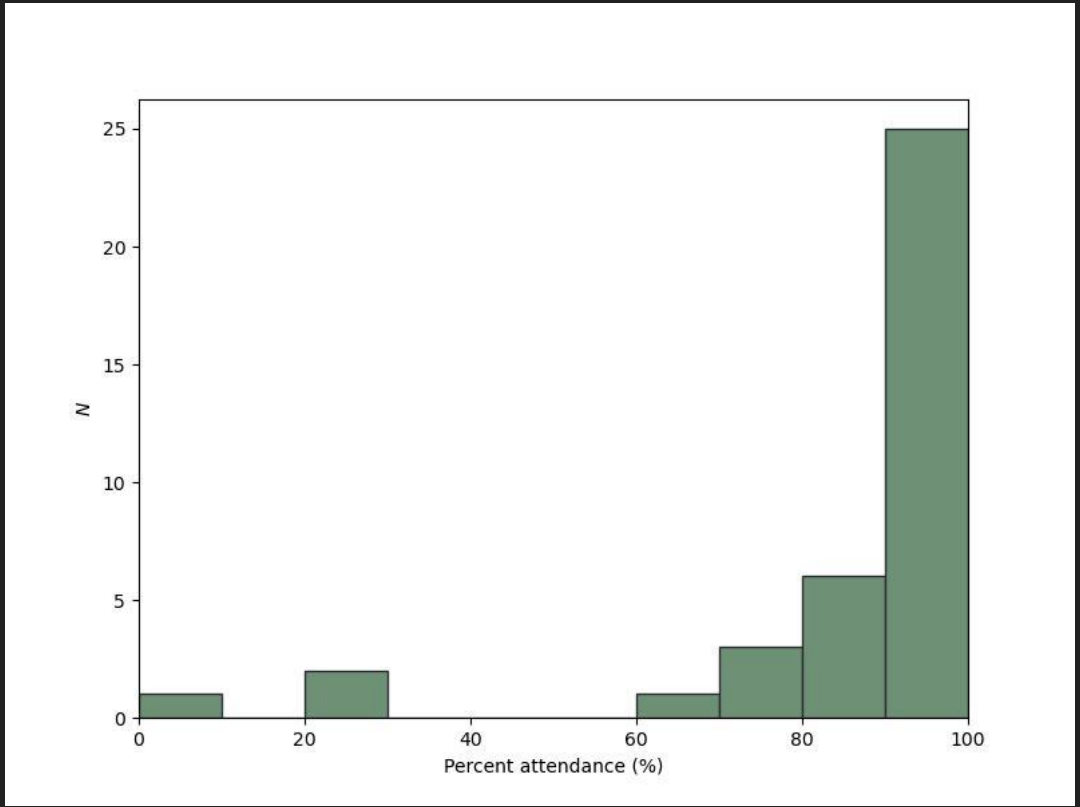
Rooftop observing

University of Wyoming | College of Engineering and Physical Sciences | Physics and Astronomy

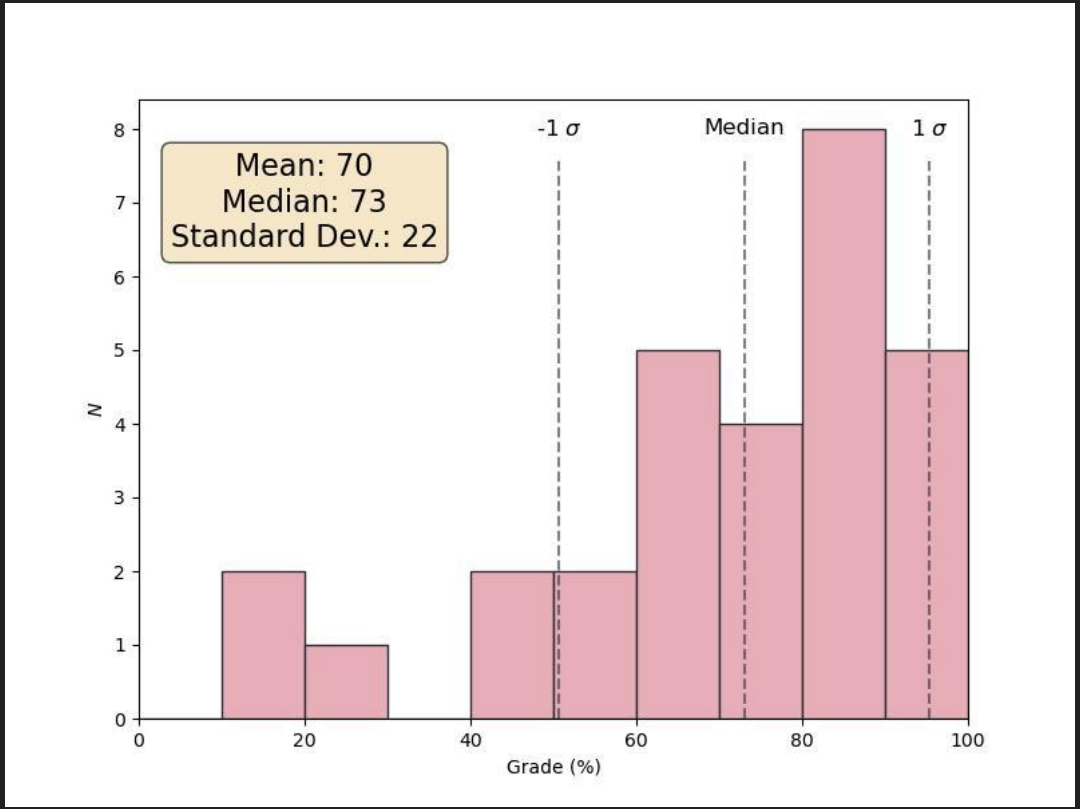
Monday, Wednesday and Friday, 6:30–8:30 pm.

Meet in PS 122

Participation



Exam 2


Mean: 70
Median: 73
Standard Dev.: 22
-1 σ
Median
1 σ
N
Grade (%)
0
1
2
3
4
5
6
7
8
0
20
40
60
80
100

Poll everywhere

What are your thoughts on the second exam?

When poll is active respond at **PollEv.com/nikhilpatten355**

Send **nikhilpatten355** to **22333**

Globular clusters

- A dense collection of millions or tens of millions of stars held together by gravity
- Scattered around the galaxy, likely formed at similar times

Globular clusters

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Messier 3

Globular clusters

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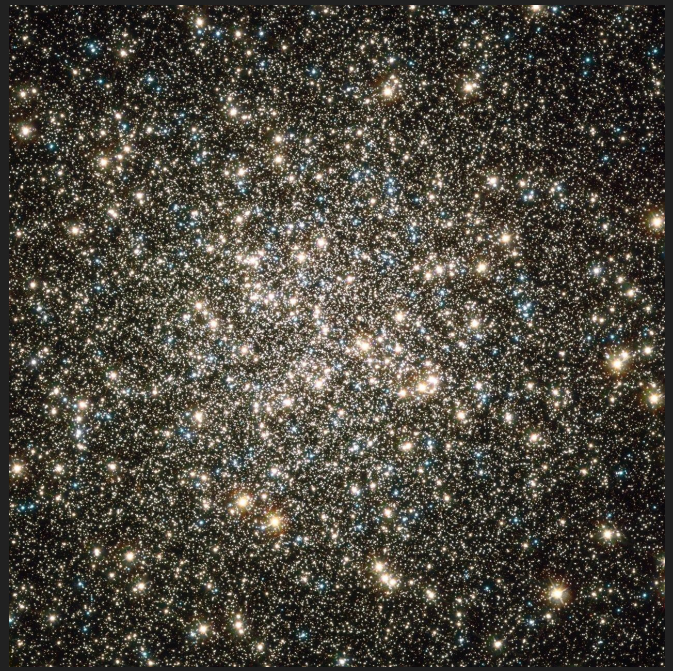


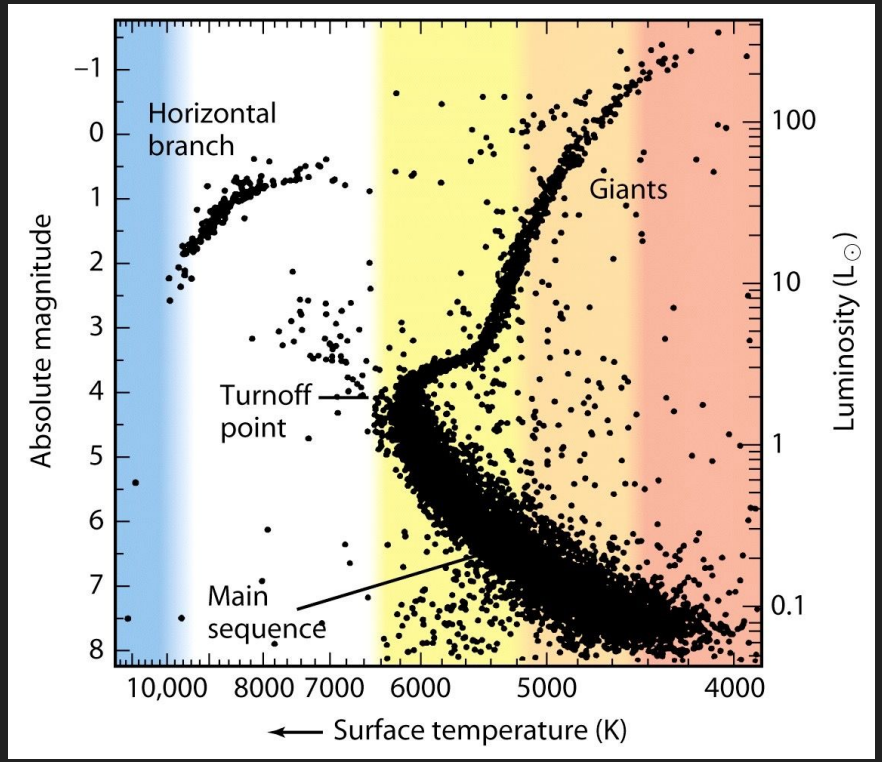
Messier 13

Globular clusters

Messier 92

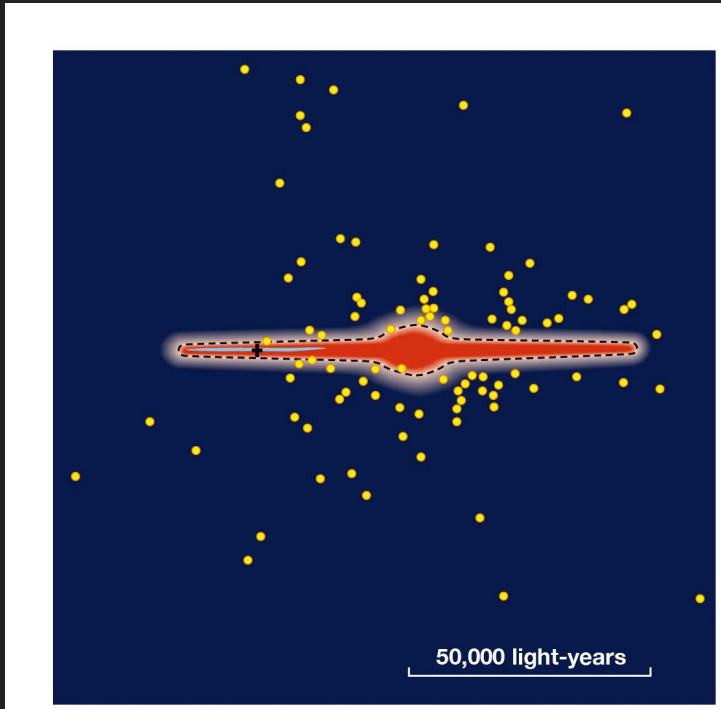
Globular clusters

- Globular clusters are old
  - Turnoff at 0.8 M_Sun
  - Age: ~12 billion years old
- Very few massive MS stars
  - The few are called blue stragglers
  - They are binaries that steal mass from their companions and rejuvenate



Globular clusters

- Globular cluster spatial distribution tells us we are on the edge of the Milky Way



Sagittarius A*

- Radio emission in the constellation Sagittarius indicated a compact object at the center of our galaxy
- Likely a black hole (more next class)
- Obscured by interstellar dust, hard to observe

Sagittarius A*

- Andrea Ghez and her group used infrared astronomy and adaptive optics to study the motions of stars orbiting the compact object
- Observations and Kepler's Third Law gives black hole mass

Sagittarius A*

stellar motion data

Next time

- Black holes