

RECITATION 9: MALLOC

15-213 M12

Rick Benua

Midterm Exam

- Grades will be released this week
 - Viewable on Autolab

Malloc Lab

- Out now!
- Due next Tuesday
- Get started now

Malloc Lab: Getting Started

- Textbook website
 - <http://csapp.cs.cmu.edu/public/ics2/code/vm/malloc/mm.c>
 - Implicit List allocator
- K&R

Malloc Lab - Grading

- Correctness
 - Does it work?
 - Driver writes over memory and ensures it isn't modified
- Throughput
 - How fast your code can perform allocations / frees
 - Linear time operations (e.g. searching an implicit list) are a big hit here
- (Peak) Utilization
 - How much memory is wasted or used for malloc's data
 - Measured by how much `mem_sbrk()` is called

Malloc Lab – Grading

- 0 if incorrect / doesn't compile
- 60-100 based on utilization / throughput
- 0 if <60 (so you can't just hand in the textbook's implementation)
- Getting ≥ 95 on this lab is very hard.

Malloc Lab – Hints

- Start with the textbook's code and expand on it
- Make incremental optimizations
 - Explicit free list
 - Explicit free list w/ constant time coalescing
 - Segmented free list
- Use structures to view memory