# CMSC330 Fall 2015 Quiz #2

**Name: _____**

| **Discussion Time:** | **10am** | **11am** | **12pm** | **1pm** | **2pm** | **3pm** |
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| **TA Name (Circle):** | **Adam** | **Maria** | **Chris** | **Chris** | **Michael** | **Candice** |
| | **Amelia** | **Amelia** | **Samuel** | **Josh** | **Max** | |

**Instructions:**

- Do not start this test until you are told to do so!
- You have 15 minutes for this quiz.
- This is a closed book exam. No notes or other aids are allowed.
- Answer essay questions concisely in 2-3 sentences. Longer answers are not needed.
- For partial credit, show all of your work and clearly indicate your answers.
- Write neatly. Credit cannot be given for illegible answers.

1. (4 pts) Give the types of the following OCaml expression

   a. (2 pts) `[[1.0];[2.0;3.0]]` **Type =**

   b. (2 pts) `let f (x::_) = x;;` **Type =**

2. (3 pts) Write an expression of type `int -> int -> int`

3. (4 pts) Write a recursive function *sumSmall* which takes in an int list *lst* and an integer threshold *x* and recursively sums up the elements of *lst* which are strictly less than *x*. For instance, given the list [1;2;1;4;2;3] 3, *sumSmall* will return 6.

4. (4 pts) Using map or fold and an anonymous function, write an Ocaml function *timesThree*, which takes in a list of floats *lst* and returns a list of floats in which each element is 3 times greater. For instance, calling *timesThree* on [1.0; 2.0; 3.0] would return [3.0; 6.0; 9.0]. If you do not use map or fold, you will not receive credit.

| | |
|---|---|
| **let rec map f l = match l with**<br>**[ ] -> [ ]**<br>**\| (h::t) -> (f h)::(map f t)** | **let rec fold f a l = match l with**<br>**[ ] -> a**<br>**\| (h::t) -> fold f (f a h) t** |