

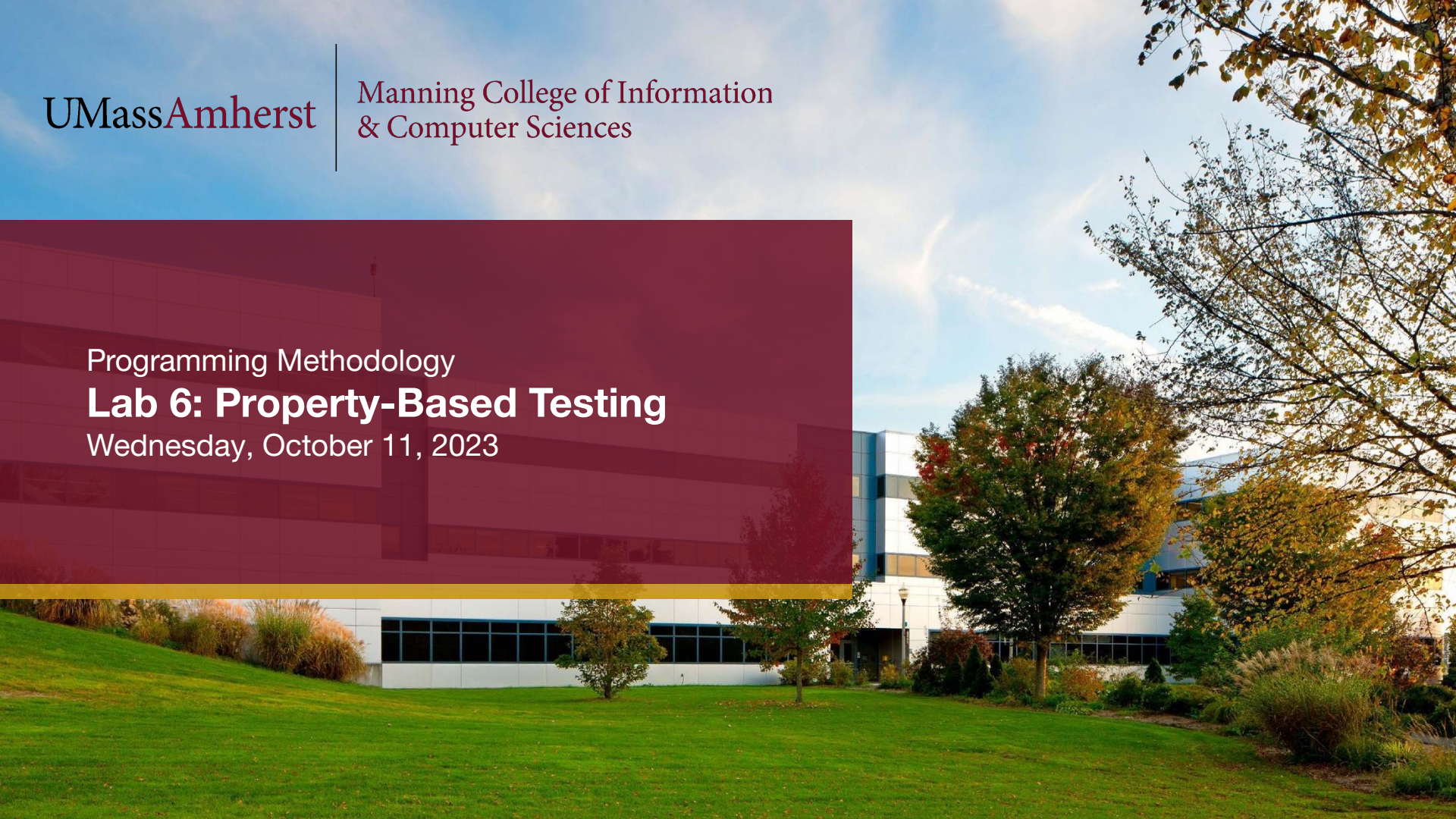
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Programming Methodology

## Lab 6: Property-Based Testing

Wednesday, October 11, 2023



# Property-Based Testing

Used when a problem has **more than one** right answer

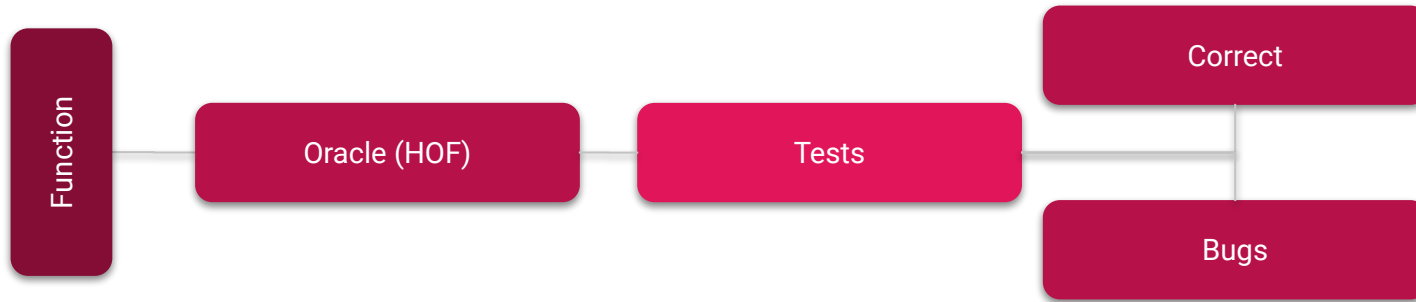
Steps to Property-Based Testing:

1. Start with a valid input to your problem
2. Run the algorithm on that input
3. Check that the result has all necessary characteristics

# Oracle Functions

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# Exercise: Permutations

A function **genArray**(n: number): number[][] is supposed to generate an  $n \times n$  array of numbers such that each row and column is a permutation of the numbers from 0 to  $n-1$ .

**Write an oracle that accepts the function genArray as input.**

Use higher-order functions when appropriate. Try to write your implementation in  $O(n^2)$ .

# Review Exam Questions

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With the left over time we'll go over exam questions that you all found difficult.

Suggestion: Q3 or Q4, but we can go over any you want.