**Matrix-Matrix Multiplication**

We multiply two matrices by breaking it into several vector multiplications and concatenating the result.

|  |
| --- |
|  |

An **m x n matrix** multiplied by an **n x o matrix** results in an **m x o** matrix. In the above example, a 3 x 2 matrix times a 2 x 2 matrix resulted in a 3 x 2 matrix.

To multiply two matrices, the number of **columns** of the first matrix must equal the number of **rows** of the second matrix.

For example:

% Initialize a 3 by 2 matrix

A = [1, 2; 3, 4;5, 6]

% Initialize a 2 by 1 matrix

B = [1; 2]

% We expect a resulting matrix of (3 by 2)\*(2 by 1) = (3 by 1)

mult\_AB = A\*B

% Make sure you understand why we got that result

A =

1 2

3 4

5 6

B =

1

2

mult\_AB =

5

11

17