# Lab 2: Mapping the URban Foorprint of Raleigh, NC

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| **Name:** | **Javier Jesus Macossay Hernandez** |
| **Lab Session:** | **Monday 4 pm – 6 pm** |

## Answer the questions in the space provided – show your calculations for Questions 4 – 8 for full credit.

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| QUESTION 1: What is the linear unit for the cell? |
| Answer: feet |
| QUESTION 2: Please provide longest distances east-west and north-south, respectively in kilometers scale. Note, (98.425 feet is approximatelly equal to 30 meter, no decimal points are required). |
| Answer: North-south = 137,598.15 feet. North-south = 41.94 km  East-west = 131,200.525 feet. East-west = 39.99 km |
| QUESTION 3: How many of cells can be defined as the developed areas? |
| Answer: 281,666 |
| QUESTION 4: What is the **percentage** of the develped area (digital value = 21, 22, 23, and 24) out of the entire area of Raleigh in 2001? (Show your calculations.) |
| Answer: (281,666/420,716)\*100 = 66.95 % |
| QUESTION 5: By how much has the developed area increased between 2001 and 2011? Please provide an absolute value of the percentage increase. (Show your calculations.) |
| Answer: 16.85% - 11.16% = 5.69% |
| QUESTION 6: Each cell Value indicates a percentage of impervious surface in that cell (**Value 1** indicates impervious surface > 50%). What percentage of the total cells report more than 50% impervious surface in 2001? (Show your calculations.) |
| Answer: (46,938/420,716)\*100 = 11.16% |
| QUESTION 7 Again, each cell Value indicates a percentage of impervious surface in that cell (**Value 1** indicates impervious surface > 50%).  A) What percentage of the total cells report more than 50% impervious surface in 2011?  B) What is the difference in the percentage of cells with more than 50% impervious surface from 2001 to 2011? (Show your calculations.) |
| Answer:  A)(70,894/420,716)\*100 = 16.85%  B) 16.85% - 11.16% = 5.69% |
| QUESTION 8: If this trend keeps going until 2100, what percentage of land area will be covered by impervious surface in 2100? (Show your calculations.) |
| Answer: If in 10 years is 5.69%, I will multiply that number by a factor of 10 to get the result. 10\*5.69% = 56.9% |