

Fri 16th 11° 7° 30%

DEPARTMENT OF STATISTICS

Walking in Oxford on a cold and rainy day

With prof. Matthias Winkel

**CHALK + TALK**

**ink + think**

① listening  
② first way of processing  
③ Writing, incl. sth., you're not quite sure about

School  $\downarrow$  gravity  $\downarrow$  **MOTION** ==formalism==> University  $E = MC^2$   $\int \vec{J} d\vec{s}$

## CONCRETE AND ABSTRACT THINKING

$\downarrow$  gravity  $\downarrow$

Why falling?

**MOTION**

**FORCE**

**ACCELERATION**

**ISAAC NEWTON**

$E = MC^2$

$W = 2\pi f$

$\beta = \frac{\Delta I_c}{\Delta I_B}$

$E = \frac{1}{2} h \sqrt{k/m}$

$I = \frac{V_e}{R + R_i}$

$m = N \cdot M_0 = \frac{Q}{V_e} \frac{M_m}{N_A}$

$I = \frac{V_e}{R + R_i}$

$E = \frac{1}{2} h \sqrt{k/m}$

$(\vec{E} \times \vec{B})$

$\int \vec{J} d\vec{s}$

$\vec{S} = \frac{1}{\mu_0} (\vec{E} \times \vec{B})$

**ALBERT EINSTEIN**

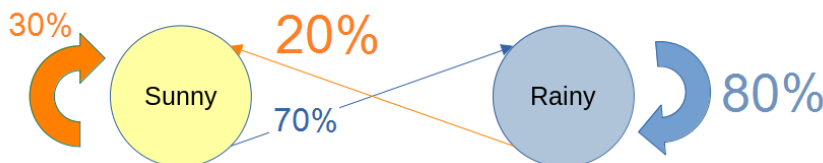
Motivation: 80% chance of rain

Let  $A_j$  be the event of rain at  $t_{jam}$  on day  $j$  of this term,  $1 \leq j \leq n$

Suppose the events  $A_i$  each have probability  $p$ , independently

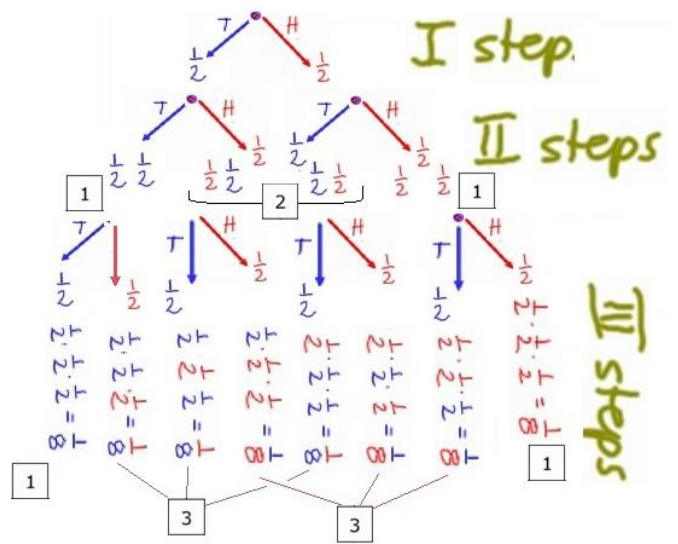
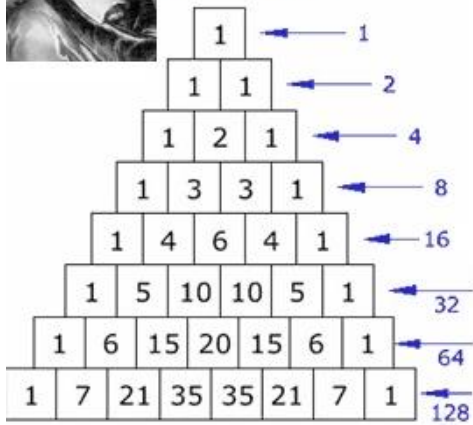
Oxford				
Tue 13th	Wed 14th	Thu 15th	Fri 16th	
10° 9°	13° 10°	13° 8°	11° 7°	
70%	70%	70%	80%	

### Markoff Chain Probability Model for Oxford Weather





# Pascal's triangle



$$(a + b)^0 =$$

$$(a + b)^1 =$$

$$(a + b)^2 =$$

$$(a + b)^3 =$$

$$(a + b)^4 = a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4$$

$$(a + b)^5 = a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + b^5$$

1  
Newton's Binomial

$$a + b$$

$$a^2 + 2ab + b^2$$

$$a^3 + 3a^2b + 3ab^2 + b^3$$

