

# MAS345 Cipher challenge 2015

Dan Fretwell  
(daniel.fretwell@sheffield.ac.uk)

In cryptography the method of encryption is often as important to keep secret as the keyword(s). Three standard ciphers are given below, each encrypted using a different classical cipher. Each keyword is the surname of a famous mathematician beginning with L. Break these ciphers and you will find hints towards the three non-standard ciphers (not necessarily given in the correct order). These ciphers will require you to be creative in order to decrypt.

DIWHUWKHWRXJKHUFLSKHUVFRPHVWKHFKDOOHQJHFL  
SKHUWKLZLOOEHHQFUBSWHGZLWKDILQHDQGVRPHWK  
LQJQHZHPDLOWKHILQDOPHVVDJHWRPHIRUDFKDQFHW  
ZLQDSULCH

## Standard ciphers

- EHTMIDSNENOIHSSLUOEBDVIFYBEEWTYTNENO
- TBDQLTCMMRTBDGCGUJRDQDKGDMRLGCGIDTMCTS  
NCLJDTDQCSUSDNRMQMKDMRTBDGCOBDQSTBDGMQQD  
SOMKNCKAGCOBDQWCITDIYMUMKDMRTBDHDYWMQN  
SRMQTBDRCKLIGBLIIDKAD
- EWUGOVTXDEBVBNTIPIMYTGCSPIMYBTIPIMYTGCSPIMY  
TSUYCFOMEAORPZKIOSUYCFOMEGCSEHXVESOZPTNIERYM  
IZKIOGCSPIMYTFKZPNLFUEYIGETFNRZLCEKWIJK

## Non-standard ciphers

- ROIPKCJKPHDARZUDPGIY
- 10000001001000100011110000010101100100100010000011101  
0101010011100000101010011001001111110101010001000111
- 485165195.4, 8103.083928, 1096.633158, 403.4287935, 442413.3920, 1318815734,  
1202604.284, 162754.7914, 1, 54.59815003, 20.08553692, 8886110.521, 8886110.521,  
22026.46579, 9744803446, 8103.083928, 26489122130, 65659969.14, 26489122130,  
72004899340, 20.08553692, 8103.083928, 2.718281828, 403.4287935, 24154952.75,  
7.389056099, 2.718281828, 442413.3920, 1202604.284, 2980.957987, 2980.957987,  
3584912846, 2.718281828, 2980.957987, 3269017.372, 3584912846, 178482301.0,  
20.08553692, 24154952.75, 1096.633158, 3584912846, 1096.633158, 1318815734,  
3584912846

**Turn over for the challenge cipher**

**Challenge cipher**

- IDBCRDXTTQYTLEDJNUVTVRHCCHVRTOUQSNLZGLSLWQONVW  
LTHUXITPUVQCQYOPTQYTLGDOUZGTNQFPMMBJNPUQDSUZTT  
SKJTHZLOQMXHVWRAGRZITVLNZZDQYOJSVIUBJNOUQOYECPT  
QJWXUXZTYHNAHTL