

## Turing, Gödel, Proof and Truth – The Limits of Reasoning



by **Professor Michael Worboys**

Fridays, 15-29th March 2019,  
from 10-12 noon

William Elder Building,  
56-58 Castlegate,  
Berwick, TD15 1JT

This course of three lectures investigates the power and limitations of human and machine reasoning.

*A Berwick barber advertises that he will shave for free all and only those men who do not shave themselves. The question is, does the barber shave himself?*

Is there a limit to human knowledge? Will computers eventually be able to calculate everything? What is truth and can all true statements be proved? What do we mean by a proof? These questions began with early thinkers like Aristotle and were eventually at the heart of scientific investigations in the 20<sup>th</sup> century, occupying the thinking of such giants as Bertrand Russell, Kurt Gödel and Alan Turing.

The lecture series will investigate what these questions mean, survey the contributions of key scientists, and come up with some answers. No previous knowledge of mathematics or computers is required.

## COURSE CONTENT

Lecture 1: Notions of truth, proof and reasoning. Propositions and universal statements. Aristotle's logic.

Lecture 2: Alan Turing's theory of computing. The limits of AI and what computers can do.

Lecture 3: Bertrand Russell and Kurt Gödel – the limits of human reasoning. How do we reason with uncertainty?

**All are welcome and no previous knowledge is assumed**

The cost of the course is £18, including refreshments.

If you supply us with your personal data (name, address or email), we will hold this in accordance with our privacy policy, available [here](#) or by request to BEA, 7 Ravensdowne, Berwick-upon-Tweed TD15 1HX. If you have any queries, please email [berwickea@gmail.com](mailto:berwickea@gmail.com) or phone Cian McHugh on 01289 303254

**To book online**, please [click here](#) **To book by mail**, please fill in the booking form below, and mail to BEA, 7 Ravensdowne, Berwick-upon-Tweed TD15 1HX along with a cheque in favour of BEA.

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Cheque enclosed £

(Turing, Gödel,)