

Dr Neville Fowkes
Applied Mathematics and complex systems

Project topics

Generally I offer students a suite of 'industrial maths' problems based on problems I have worked on that have come from government or industry, and ask them to choose. Typical problems:

(I will provide reference material to interested students).

Fishing Pole Design.

What length, diameter and taper and material properties would produce the best fishing pole design for casting? How can one best model the casting process?

Requirements: Some Mathematica or MATLAB experience desirable.

Rhino survival:

The black rhino in South Africa is endangered due to poaching. The hope is that by relocating animals to other areas one can increase total population numbers and avoid extinction.

Requirements: Some Mathematica or MATLAB experience desirable.

Gas Venting.

Accumulated toxic gases from the oil industry need to be vented into the atmosphere. By venting at night and intermittently one may hope to keep concentration levels less than prescribed levels. The aim is to determine the concentration levels that result from such a release taking into account local weather conditions and topography.

Requirements: Some Mathematica or MATLAB experience desirable.