

NEWNHAM COLLEGE
CAMBRIDGE CB3 9DF

The Philippa Fawcett Mathematics Prize 2019-20

The Philippa Fawcett Mathematics Prize is open to all girls currently in Year 12 (Lower Sixth) at a UK school. The prize may be of particular interest to those studying Mathematics, Statistics or Further Mathematics but we welcome entries from interested students studying any combination of subjects.

Entrants are invited to submit a response to any **one** of the questions overleaf. Submissions should comply with the following:

- 4-6 A4 sides maximum including all figures, diagrams, tables and bibliography
- 12 point font minimum
- 2 cm margins minimum
- 2500 words max.

All sources must be appropriately acknowledged and cited, and a bibliography, including websites consulted, should be included. Up to **five** entries may be submitted per school.

There are many angles from which to approach each topic. Good submissions will present a clear argument and demonstrate understanding of the underlying mathematical ideas. Use of formulae is encouraged but every presented piece of mathematics has to be carefully explained.

Each of the Newnham Essay Prizes has a first prize of £400, a second prize of £200, and third prize of £100.

Entrants should upload their submissions to the webform, found here:

<http://www.newn.cam.ac.uk/admissions/undergraduates/newnham-essay-prizes/>.

The cover sheet should also be uploaded to this webform. Please ensure that a school/ college representative has completed the appropriate section. Entries will not be valid without this information.

The deadline for receipt is Friday 6th March 2020. For any queries not answered here, please contact Lucy Rogers (Schools Liaison & Outreach Officer) by email at slo@newn.cam.ac.uk or by telephone on 01223 330471.

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The Philippa Fawcett Mathematics Prize 2019-20: Questions

1. How does mathematics protect your privacy online?
2. What are the most fascinating aspects behind the mathematics of music?
Discuss how mathematics is related to the theory of musical sound and/or instruments.
3. The mathematics of gambling: discuss the fundamental mathematical principles underlying gambling/betting, how the theory came up and how it developed through time. Do these principles have applications in other areas?