UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

Mathematics 502 Topics in Applied Mathematics

Calendar Description:

This topics course is on "Industrial Applied Mathematics" with a focus on applications of mathematics that arise in industrial settings. This will include modeling of industrial processes, numerical computation, and analysis. The recommended texts (Fowler, Howison) give a good overview of the material to be covered.

Specific topics will be chosen according to the interests of the instructors and students.

502 Topics in Applied Mathematics

Course Hours: 3 units; H(3-0)

Prerequisites: Any two Mathematics courses in the Field of Mathematics at the 400 level or above.
Some physics, chemistry, biology, or engineering coursework would be an asset.
Also formerly known as Pure Mathematics 503. MAY BE REPEATED FOR CREDIT

Recommended textbooks:
Practical Applied Mathematics, by Sam Howison
Mathematical Models in the Applied Sciences, by A.C. Fowler

Syllabus

Topics:	**Number of Hours**
Mathematical software and computational tools	3
Basics of mathematical modeling	3
Units and dimensional analysis	3
Numerical methods – Signal processing, differential equations, optimization	9
Mathematical inverse problems – theory and numerics	3
A selection of instructive industrial applications –medical and seismic imaging, electronic devices, control systems, fluids, etc	15
TOTAL:	**36**

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