Three Math Education Initiatives at York University

- MATH 1580/1590 and the new math elective
- MATH 4100
- Proposed Mathematics Education Diploma
    o With the M.A. in Mathematics for Teachers
    o With the M.Ed
    o Direct Entry

For elementary TC's --a new elective Under a renewal of the concurrent program, space was provided for students to take electives.

- The need for increased math preparation has been noted by researchers – and by anyone who has taught elementary preservice courses!
- In Sept 2004, MATH 1580 will morph into an elective – MATH 1590 will remain an optional course for interested students.

2004/2005 Minicalendar

MATH 1580 – Thinking Mathematically I

The title of this course, the cross-listing with EDUC 2590, and the Calendar copy and Prerequisite below are not official as we go to press, but are expected to be, in Fall 2004. The course code is also expected to change, to MATH 2590 3.0.

The main objectives of this course include providing opportunities for students to achieve success in thinking mathematically and to reflect on the learning and practice of mathematics. Intended primarily, but not exclusively, for Education students in the PJ and JI streams.

Exclusions: Not open to any student who has taken or is taking another university mathematics course unless permission of the course coordinator is obtained.

Text used:

Mason, J., Burton, L., & Stacey, K. (1985). *Thinking mathematically, revised edition.* Wokingham, England: Addison Wesley.

For those pursuing math as a teachable --an opportunity

Although Math 4100 has been on the books for several years it has not been offered. We have suggested several changes, which will allow students to investigate the relationships between their knowledge of mathematics content and research in mathematics pedagogy. We hope that students who want a math teachable will include it in their program.

MATH 4100 – Seminar in Mathematics Education *(proposed description)*

This course provides opportunities for students to examine topics in mathematics, and themes in mathematics education. The main focus is on developing students' ability to unpack and communicate concepts in mathematics, and to think critically about what mathematicians do and what students do when they are learning mathematics.

For teachers -- a chance to specialize in math education

A proposal that is being considered by FGS would allow students in the M.Ed or the M.A. Programme in Mathematics for Teachers to earn a Graduate Diploma in Mathematics

Education. The proposal also asks for the institution of a direct entry diploma. In both cases there would be core requirements. The other courses would be chosen from an approved list such as that below.

Graduate courses in mathematics education available at York
- EDUC 5840/MATH 5840 3.0 Mathematics Learning Environments
- EDUC 5841/MATH 5900 3.0 Thinking about Teaching Mathematics
- EDUC 5215 3.0 Research in Mathematics Education [proposed]
- EDUC 5845 3.0 Mathematics and Science Understanding in Early Childhood [proposed]
- EDUC 5900 3.0 Directed Reading [related to mathematics education]
- *MATH 5450/ EDUC 5837 6.0 Geometry for Teachers
- *MATH 5100 6.0 Mathematical Literature Seminar for Teachers
- *MATH 5200 6.0 Problem Solving
- *MATH 5300 6.0 Microcomputers for Teachers
- *MATH 5500 6.0 Topics in Mathematics for Teachers
- *MATH 5020 6.0 Fundamentals of Mathematics for Teachers
- *MATH 5400 6.0 History of Mathematics for Teachers
- *MATH 5410 6.0 Analysis for Teachers
- *MATH 5420 6.0 Algebra for Teachers
- *MATH 5430 6.0 Probability, Statistics and Computing for Teachers

(* requires mathematics background, permission of instructor)

Also suggested as possible options for the proposed diploma program:
- EDUC 5860 3.0 Issues in Digital Technology in Education
- EDUC 5210/MATH 5910 3.0 Quantitative Research Methods in Education
- EDUC 5200 3.0 Qualitative Research Methods in Education.

The three initiatives address:
- The need for additional preparation in mathematics for preservice elementary teachers.
- The need for those with a math teachable to examine issues in mathematics education.
- The need for programs to help practicing teachers extend their mathematics education knowledge.
- The need to develop graduates in mathematics education. Although there are many other initiatives being undertaken by the Faculty of Education at York (e.g., renewal of undergrad programs, online AQ courses), the initiatives presented here are special because:

--They are joint projects of the Department of Mathematics and Statistics and the Faculty of Education.