LEVEL OF MATHEMATICS TO BE USED IN ECON 3070, 3080 AND 3818
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Because Econ 3070, 3080 and 3818 are required core courses, the Undergraduate Curriculum Committee feels that the department has more control over the content of these courses than over the content of other elective courses.

Currently Econ 3070, 3080 and 3818 have a pre-requisite of Econ 1078 and 1088 or Math 1300 or equivalent. The latter courses teach basic algebra and calculus (differentiation and integration) but this material is not used in many sections of Econ 3070, 3080 and 3818. This is unsatisfactory as

(1) students learn the tools but then are denied the application.
(2) some students would benefit from seeing the basic intuition presented using maths but the current approach denies it to them.
(3) the use of even simple maths in the 4000-level elective courses is severely limited.
(4) teaching the required courses in mathematical economics (Econ 4803, 4818 and 4838) becomes particularly challenging.

In view of the above concerns, the committee finds that simple differentiation and integration should be used in all sections of Econ 3070, 3080 and 3818. To illustrate the level of maths which should be used, the committee considered the condition for utility maximization for two goods as an example (MRS = price ratio). Using standard notation, the problem should be written formally as:

$$\text{Max } U(x_1, x_2) \quad \text{subject to} \quad p_1 x_1 + p_2 x_2 = y.$$

The budget constraint should be used to substitute for one commodity so that the problem is rewritten as:

$$\text{Max } U((y - p_2 x_2)/ p_1, x_2).$$

The total derivative is then taken with respect to x_1 as:

$$dU/dx_1 \, (-p_2/p_1) + dU/dx_2 = 0.$$

This is rearranged as:

$$dU/dx_2 \, / \, dU/dx_1 = p_2/p_1$$

or

$$- dx_1/dx_2 = p_2/p_1$$

It should be stressed that the above presentation is not meant to replace the standard

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