Department of Economics
19 January 2006
A. Strøm, room 1119, ES
K. Sydsæter, room 1125, ES

ECON3120/4120 Mathematics 2, spring 2006

Lecture schedule (Note: Changes may occur)

Lectures:
Tuesday 14.15—16.00, auditorium 7.
Friday 10.15—12.00, auditorium 7.

Seminars (problem sessions):
Monday   12.15—14.00, seminar room 201. Seminar leader: Li Zhang/Magnus Andresen.
Monday   16.15—18.00, seminar room 301. Seminar leader: Li Zhang/Magnus Andresen.
Wednesday 8.15—10.00, seminar room 301. Seminar leader: Magnus Andresen.

The seminars begin in week 5 (30.1—3.2).

Curriculum:

EMEA: K. Sydsæter and P. Hammond: **Essential Mathematics for Economic Analysis, 2nd ed.,**
FT Prentice Hall, 2006. The entire book, except Sections 10.5—10.7 and 16.9 and Chapter 17. (You
can also use the first edition from 2002: The entire book, except Sections 10.5—10.7 and 16.9.)

FMEA: Knut Sydsæter, Peter Hammond, Atle Seierstad, and Arne Strøm: **Further Mathematics
for Economic Analysis,** FT Prentice Hall, 2005. Sections 5.1—5.4 and selected parts of Sections
3.5—3.8.

The curriculum listed above includes the curriculum of the mathematics part of the course ECON2200
Mathematics I/Micro I.

The final **exam** is scheduled for 6 June, 14.30—17.30 (but this may be changed).

**Note! In order to be allowed to sit for the exam, you must complete two compulsory term
papers (problem sets) satisfactorily.**

Tue 17.1	Exponential functions and logarithms. (EMEA 4.9—4.10, 6.10—6.11)
Fri 20.1	Exponential and logarithmic functions. Compound interest and present value. (EMEA 6.10—6.11, 10.1—10.3)
Tue 24.1	Limits and continuous functions. The intermediate value theorem. (EMEA 7.8—7.11)
Fri 27.1	Inverse functions. Indefinite expressions. (EMEA 5.3, 5.6, 7.12)
Tue 31.1	Linear and quadratic approximation. Taylor's formula. (EMEA 7.4—7.6)
Fri 3.2	Integration. (EMEA 9.1—9.4)
Tue 7.2	Methods of integration. (EMEA 9.5—9.6)

Fri 10.2   Extensions of the integral concept. (EMEA 9.7)

Tue 14.2   First-order differential equations. Separable differential equations.
                (EMEA 9.8, FMEA 5.1—5.3)

Fri 17.2   Linear differential equations. (FMEA 5.4)

Tue 21.2   Vectors. Scalar products. Summation notation. (EMEA 15.7—15.9, 3.1—3.3)

Fre 24.2   Matrices. (EMEA 15.1—15.5)

Tue 28.2   Gaussian elimination. Determinants. (EMEA 15.6, 16.1—16.3)

Fri 3.3   Determinants. (EMEA 16.4—16.5)

Tue 7.3   Inverse matrices. Cramer's rule. (EMEA 16.6—16.8)

Fri 10.3   The chain rule with several variables. (EMEA I 12.1—12.2)

Tue 14.3   Homogeneous functions. (EMEA 12.6—12.7)

Fri 17.3   Derivatives of implicit functions. Slope of level curves. Derivatives of inverse
                functions. (EMEA I 7.1—7.3, 12.3—12.4)

Mon 20.3   **Term paper 1 is announced.**

Tue 21.3   Straight lines and planes. Tangent planes. Differentials. (EMEA 15.9, 12.8—12.9)

Fri 24.3   Differentiation in equation systems. (EMEA 12.10—12.11)

Week 13   "Reading week". No lectures or seminars in this course during the period 27.3—31.3.

Mon 3.4   **Deadline for term paper 1.**

Tue 4.4   Maxima and minima. (EMEA 8.1—8.6 (brief review), 13.1—13.6)

Fri 7.4   Constrained maxima and minima. (EMEA 14.1—14.5)

Week 15/16   Easter. No lectures or seminars in this course during the period 10.4—18.4.

Wed 19.4   **Term paper 2 is announced.**

Mon 21.4   Constrained maxima and minima. The envelope theorem. (EMEA 14.5—14.6, 13.7)

Tue 25.4   Nonlinear programming. (EMEA 14.7—14.8, parts of FMEA 3.5—3.8)

Tue 2.5   Elasticities. Finding elasticities of implicit functions. (EMEA 7.7, 11.8, 12.5)

Thu 4.5   **Deadline for term paper 2.**

Tue 9.5   Final review and summing up.

Keep an eye on the **ECON4120** home page!