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

ECON3120/4120 Mathematics 2, fall term 2006

Lectures:
Monday 14.15—16.00, auditorium 4.
Wednesday 14.15—16.00, auditorium 4.

Seminars (problem sessions):
Monday 10.15—12.00, undervisningsrom 2, Georg Sverdrups hus. Seminar leader: Magnus Andresen.
Wednesday 8.15—10.00, seminarrom 101, Harriet Holters hus. Seminar leader: Magnus Andresen.
The seminars begin in week 36 (4.9—8.9).

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.
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 December 8, 09.00—12.00.

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

Mon 21.8	Exponential and logarithmic functions. (Review.) Indefinite expressions. (EMEA 4.9—4.10, 6.10—6.11, 7.12)
Wed 23.8	Exponential and logarithmic functions. Compound interest and present values. More on indefinite expressions. (EMEA 6.10—6.11, 7.12, 10.1—10.3)
Mon 28.8	Chain rules. Implicit differentiation. Slopes of level curves. (Review.) Differentials. Differentiation in equation systems. (EMEA 7.1—7.3, 12.1—12.4, 12.8—12.11)
Wed 30.8	Differentiation in equation systems. Limits and continuous functions. The intermediate value theorem. (EMEA 7.8—7.11, 12.10—12.11)
Mon 4.9	Integration. (EMEA 9.1—9.4)
Wed 6.9	Integration and methods of integration. (EMEA 9.1—9.6)
Mon 11.9	Methods of integration. (EMEA 9.5—9.6) **Term paper 1 is announced.**
Wed 13.9	Extensions of the integral concept. (EMEA 9.7)

Mon 18.9	First-order differential equations. Separable differential equations. (EMEA 9.8, FMEA 5.1—5.3)
Wed 20.9	Separable and linear differential equations. (FMEA 5.3—5.4)
Mon 25.9	Linear differential equations. (FMEA 5.4)
Wed 27.9	Vectors. Scalar products. Straight lines and planes. (EMEA 15.7—15.9) **Deadline for term paper 1.**
Week 40	"Reading week". No lectures or seminars in this course during the period 2.10—6.10.
Mon 9.10	Matrices. (EMEA 15.1—15.4)
Wed 11.10	Matrices. Gaussian elimination. (EMEA 15.5—15.6)
Mon 16.10	Determinants. (EMEA 16.1—16.3)
Wed 18.10	Determinants. Inverse matrices. (EMEA 16.4—16.6)
Mon 23.10	Inverse matrices. Cramer's rule. (EMEA 16.7—16.8)
Wed 25.10	Homogeneous and homothetic functions. (EMEA 12.6—12.7) **Term paper 2 is announced.**
Mon 30.10	Maxima and minima. Review. (EMEA 8.1—8.7, 13.1—13.2)
Wed 1.11	Maxima and minima. Envelope theorem. (EMEA 13.3—13.7)
Mon 6.11	Constrained maxima and minima. Review. (EMEA 14.1—14.4)
Wed 8.11	Constrained maxima and minima. Envelope theorem. (EMEA 14.5—14.6) **Deadline for term paper 2.**
Mon 13.11	Nonlinear programming. (EMEA 14.7)
Wed 15.11	Nonlinear programming. (EMEA 14.8.)
Mon 20.11	Linear and quadratic approximation. Taylor's formula. (EMEA 7.4—7.6 and handouts.)
Wed 22.11	Elasticities. Elasticity of substitution. Finding elasticities of implicit functions. (EMEA 7.7, 11.8, 12.5, and handouts)
Mon 27.11	Final review and summing up.

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