## School of Mathematics

Course 1S1 — Calculus I with applications for Scientists 2007–08 (JF Mathematics as a whole subject within the Science Moderatorships. JF Human Genetics. JF Computational Chemistry. JF Medicinal Chemistry. JF Physics & Chemistry of Advanced Materials. )

Lecturer: Dr. F. Jaeck

Requirements/prerequisites: None

Duration: 24 weeks

Number of lectures per week: 4 hours per week, 3 lectures and 1 tutorial.

**Assessment:** Practical work, assignments, tutorial work and computer lab assignment results will count for 20% of the marks, There will be an examination at the end of the first term for 20% of the marks and a final examination in June counting for the remaining 60%.

End-of-year Examination: Three hour exam. Result is combined with results of 1S2.

## **Description:**

The textbook in 2007–8 will be [Anton]. The syllabus will be Chapters 1-11 of [Anton] plus a brief introduction to partial derivatives (sections 14.1, 14.3 of [Anton]).

Chapter headings are Functions; Limits and Continuity; The Derivative; The Derivative in Graphing and Applications; Integration; Exponential, Logarithmic and Inverse Trigonometric Functions; Applications of the definite integral in geometry, science, and engineering; Principles of integral evaluation; Mathematical modelling with differential equations; Infinite series; Analytic geometry in calculus.

## Essential Reference

[Anton] Calculus : Howard Anton, Irl Bivens, Stephen Davis. (Author Anton, Howard; 8th ed; Publisher New York : Wiley, c2005). [Hamilton 515 P2\*7, S-LEN 515 P2\*7]

## Recommended references

- [Kreyszig] Erwin Kreyszig, Advanced engineering mathematics (9th edition), Wiley, 2006 [Hamilton 510.24 L21\*8, S-LEN 510.24 L21\*8]
- [Thomas] Thomas' calculus. Author Weir, Maurice D. Edition 11th ed / based on the original work by George B. Thomas, Jr., as revised by Maurice D. Weir, Joel Hass, Frank R. Giordano Publisher Boston, Mass., London : Pearson/Addison Wesley, c2005. [Hamilton 515.1 K82\*10;\*]