MAS205 Complex Variables 2005-2006

Level 2: Semester 3

Lecturer: Dr T. Prellberg (Mathematics)

Lecture times: Monday 11-12 (MLT), Friday 11-12 (PP1) and Friday 2-3 (BLT)

Exercise class: Monday 2-3 (BMS 328), starting Monday, October 3
only for those with lectures Monday 2-3: exercise class on Monday 12-1 (Maths G2)

Office hours: Monday 1-2, Tuesday 2-3, Friday 1-2 (Maths 113)

Weekly exercise routine: Exercise sheet available by Wednesday of week n from the web page
http://www.maths.qmul.ac.uk/~tp/MAS205_0506/
Hand in work to the Complex Variables box (yellow box, on the ground floor) by 10:30am on Wednesday of week $n+1$; marked script returned at Monday exercise class of week $n+2$, or later collected from G2 (times TBA). There will be no course work racks! Include your **name** and **student number** on each sheet handed in. Cwk/test marks will be posted weekly on Saturdays to your college email address, the first posting will be at the end of week 4.

Random attendance registers: Attendance will be checked during lectures. We will terminate college registration of students who fail to submit coursework and do not attend lectures.

Test/revision week: Lecture slots in week 7 will be used for revision lectures/tutorials and tests. The midterm test is scheduled to be on Friday, Nov 11, 11:00am.

Calculators: Calculators may NOT be used in the final examination. However they can be used in the in-course open-book test.

Assessment: 80% final examination (May 2006) + 10% for an in-course open-book test + 10% for coursework (based on best 6 weekly exercises).

Syllabus

1. Complex numbers, functions, limits and continuity.

2. Complex differentiation, Cauchy-Riemann equations.

3. Sequences and series, Taylor and Laurent series, singularities.

4. Complex integration, Cauchy's theorem and consequences, Cauchy's integral formulae and related theorems.

5. The residue theorem and applications to evaluation of integrals and summation of series.

Books

M.R.Spiegel, Complex Variables (Schaum Outline)
R.V.Churchill and J.W.Brown, Complex Variables and Applications (McGraw Hill)
I.N.Stewart and D.O.Tall, Complex Analysis (Cambridge University Press)
H.A.Priestley, Introduction to Complex Analysis (Oxford University Press)
G. Cain, Complex Analysis, http://www.math.gatech.edu/~cain/winter99/complex.html

Comments:
All five books cover the whole course and quite a lot of other material. The first two are directed towards scientists and engineers and emphasise practicalities and applications rather than rigorous proof and formal development of theory. The next three are good texts for pure mathematicians. Cain's book is freely downloadable from the internet.