

The University of Sydney
School of Mathematics and Statistics
MATH3974: Fluid Dynamics
2011 Examination Information

The examination is similar in form to the past papers available on the course website. There are four questions of equal value. One question is based on material from the course notes covered in lectures; two questions consist of problems from the exercise sheets. One question is a problem which is intended to be hitherto unseen.

You will need to remember (or be able to work out) the various potentials, stream functions, and velocity fields of the simplest flows featured in the course (eg sources, vortices, dipoles, uniform streams etc.) This includes the ability to write down and use complex potentials. You are expected to be able to write down the Navier-Stokes equation with or without viscosity, and express it in the various polar coordinate systems using the vector identities sheet which is provided at the end of the paper. You are expected to remember or to be able to derive Bernoulli's equation in its simplest form.

The unseen question spells out as clearly as possible the precise steps which need to be followed.

This year there are no questions on boundary layer theory or hydrodynamic stability.

I will plan to be available for consultation on Thursday June 9th from 12-1 and 2.30-5.30, and on Friday June 10th from 10-1 and 2.30-3.30 in my office (Carslaw 712). Assignment 3 is being handled by a marker; I will try and make sure that the marked scripts are available by the Monday before the exam. Please watch the web site for information on when they are ready.