

School of Mathematics

Module MA3468 — Computational and combinatorial geometry and topology 2009-10

(JS & SS Mathematics, JS & SS Two-subject Moderatorship)

Lecturer: Dr. Colm Ó Dúnlaing

Requirements/prerequisites:

Duration: Hilary term, 11 weeks

Number of lectures per week: 3 lectures including tutorials per week

Assessment: Coursework; form and weighting to be agreed by consultation.

End-of-year Examination: This module will be examined jointly with MA3467 in a 3-hour examination in Trinity term, except that those taking just one of the two modules will have a 2 hour examination.

Description: (Preliminary draft, to be revised before June.)

Convex polytopes, shellability, Euler characteristic, McMullen's Upper Bound theorem; combinatorial topology leading to the Brouwer fixed point theorem, the Borsuk-Ulam Theorem, Sperner's Lemma, etcetera; applications to computational geometry.

May 8, 2009