



Working Group on Statistical Learning Seminar

Title: Actuarial considerations related to the impact of predictive genetic information on life and health insurance

Speaker: Jinbo Zhao (University College Dublin)

Date: Mon 7th October 2019 at 12:00PM

Location: Seminar Room SCN 1.25

Abstract: Even though access to diagnostic or predictive genetic information for underwriting by life insurers has been restricted for many years in the UK and Ireland, life insurers have noticed that predictive genetic tests for multiple illness insurance covered diseases are now in preparation for clinical usage. As a collaborative project with insurance-related parties, we assess the predictive value of genomic information with cohorts' real gene data and to discuss any possible underlying effects for the insurance industry. Several up-to-date genetic risk prediction tools are employed to test and compare their predictive performance on the same genotype data with realistic simulated phenotypes. Polygenic Risk Scores methods and Feature Selection algorithms are two tools selected in this research and can produce individual-level genetic risk indicators. Despite their varying performance under the same experimental settings, these tools do generally provide good, stable performance. With genetic risk indicators generated from real gene data, we can estimate the effect of genetic information on actuarial risk strati

cation models, investigate the adverse selection effects due to access to gene data and test the potential for claims reduction.