Abstract:
In this defense I will talk about two lines of research during my PhD. I will develop some scan statistics and derive their asymptotic distributions, using moderate deviation, large deviation, Kolmogorov’s theorem and a Poisson approximation. I will briefly mention their applications in global testing and multiple testing, resulting from the work before advancement. Next I will talk about another project on causal inference, where the causal effects of etanercept on birth defects are investigated, in the presence of missing outcomes not at random, left truncation, observational nature, and rare events.