**PhD Dissertation Defense**

**Candidate**: Robert C. Slate

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**Title**: Environmental Protection Agency Regulation of Asbestos and Carbon Nanotubes Under the Toxic Substances Control Act: Investigating the Role of Politics, Science, and Policy in Administrative Rulemaking and Implementation

**Committee**: Dr. James Conant (Dissertation Director), Dr. Peter Balint, Dr. Patrick Gillevet, Mr. Eric Compton, Esq.

## ABSTRACT

In this dissertation, four policy models—rational, incremental, interest group, and process streams—are used to examine how the policy-making process worked (or did not work) in the development of statutory law and administrative rules for asbestos and carbon nanotubes. A summary of the policy-making models is provided, followed by predictions about the passage and implementation of public law. Then, the roles Congressional policy entrepreneurs, bureaucrats, lobbyists, and interest groups played in the policy-making process that led to the enactment of the Asbestos Hazard and Emergency Response Act of 1986 are described. A discussion of the common epidemiological and toxicological principles of carbon nanotubes is the next step in the study, followed by a more detailed analysis of the physicochemical properties of chrysotile asbestos and multi-walled carbon nanotubes. Then, the relevant *in vivo* and *in vitro* findings in the scientific literature are analyzed. The findings tend to show multi-walled carbon nanotubes could have asbestos-like effects on the lungs. These findings provide an important backdrop for the examination of the Environmental Protection Agency's existing regulatory framework for carbon nanotubes. Finally, the predictions about policy making and policy implementation are examined. In this concluding section, emphasis is placed on the challenges associated with Environmental Protection Agency rulemaking on asbestos and carbon nanotubes and the implementation of the Toxic Substances Control Act.