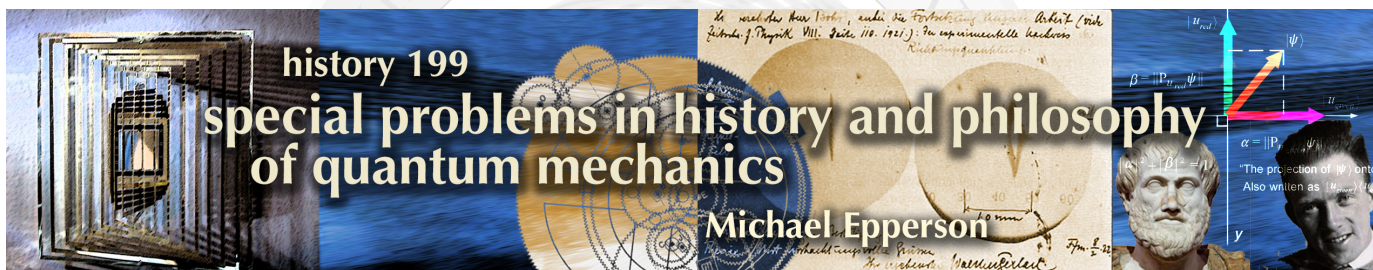




HIST 199: Special Problems in History and Philosophy of Quantum Mechanics

This is a 3 unit directed reading course for individual students interested in learning about the historical and philosophical foundations of quantum mechanics.

If you are interested in taking this course, please contact Dr. Epperson at (www.csus.edu/cpns/epperson).



Among the many exotic interpretations of quantum theory—those entailing ‘multiverse’ cosmologies, ‘time reversal,’ ‘retro-causality,’ and physical superpositions of alternative actual system states—lies a single core principle: That quantum theory’s most emblematic feature is its invalidation of classical logic—the very foundation of intuitive, critical reasoning—at the level of fundamental physics. As a result, quantum mechanics has become widely popularized, and in many cases, marketed, as mystifying and essentially incomprehensible to non-specialists. Yet at the heart of this popularization lies a paradox: The rules of classical logic purportedly invalidated by quantum mechanics are, at the same time, necessarily presupposed by quantum mechanics; indeed, they are the very rules used to formalize quantum mechanics in the first place. In this course we will explore these and other foundational problems, with the thesis that by understanding their historical and philosophical origins, we can chart the best path toward their solution.



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