THE UNIVERSITY OF WESTERN ONTARIO DEPARTMENT OF PHILOSOPHY Undergraduate Course Outline 2015-2016

Philosophy 3320F: Philosophical Foundations of Quantum Mechanics

Fall Term 2015 W 1:30–3:30, F 1:30–2:30 SH 3305 Instructor: Wayne C. Myrvold wmyrvold@uwo.ca Office: Stevenson Hall 4143 Office Hours: MW 11:30–12:30, or by appointment

DESCRIPTION

Quantum physics is different from classical physics, and the physics that governs our world is quantum. But what are we saying when we say this? What, if anything, does the empirical success of quantum mechanics tell us about the physical world? It is, to me, a fascinating fact that, though quantum mechanics is at this point more than 80 years old, and interpretive discussions have been going on all that time, there is still no consensus on what lessons we should draw from quantum physics. This course is intended as an introduction to the conceptual problems raised by quantum mechanics, and to the chief approaches to dealing with them.

No prior background in physics or plansophy islassudie Sneaking a Look at God's Cards Princeton Universit

• Selected supplementary readings, available on the course OWL site.

OBJECTIVES

Students will become familiar with the simplest experiments in which quantum mechanics makes predictions different from those of classical mechanics, and be able to identify these differences. They will understand what is meant by the "quantum measurement problem," and be able to describe the major avenues of approach to this problem.

REQUIREMENTS

Attendance and active participation in class discussions; 3 short writing assignments; two tests; term paper.

Writing assignment 1 (2-3 pp), due Oct. 2	10%
Writing assignment 2 (2–3 pp), due Nov. 6	10%
Writing assignment 3 (2–3 pp), due Nov. 20	10%
Test 1 in class, Oct. 23	20%
Test 2 date TBA, during exam period	20%
Term paper (7–10 pp), due Dec. 9	30%
	100%

Assignments are to be handed in by 3:45