

**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**  
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**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 philosophy is assumed. *However*, the course will involve an introduction to the basics of quantum mechanics (with only minimal mathematics used), and students will be expected to make some effort to learn a little bit of physics.

**TEXTS**

*Required texts:*

- GianCarlo Ghirardi, *Sneaking a Look at God's Cards*. Princeton University Press, 2005.
- 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	<u>30%</u>
	100%

Assignments are to be handed in by 3:45 PM on the due date. If you are unable to hand your assignment directly to the instructor, place it in the Philosophy Department drop-off box, which is on the first floor of Stevenson Hall. *Make sure that your name and the instructor's name are on your assignment.* Late assignments will be penalized 5% per day late.

In conformity with departmental policy all written assignments must be submitted to turnitin.com for plagiarism checking by the due date. Assignments not submitted to turnitin by the due date will be counted as late, and students will not receive credit for written assignments not submitted to turnitin.com.

No written work will be accepted after the last day of classes, Dec. 9, 2015.

## **AUDIT**

Students wishing to audit the course should consult with the instructor prior to or during the first week of classes.

The **Department of Philosophy Policies** which govern the conduct, standards, and expectations for student participation in Philosophy courses is available in the Undergraduate section of the Department of Philosophy website at

<http://uwo.ca/philosophy/undergraduate/proceduresappeals.html>.

It is your responsibility to understand the policies set out by the Senate and the Department of Philosophy, and thus ignorance of these policies cannot be used as grounds of appeal.