

WESTERN UNIVERSITY
DEPARTMENT OF PHILOSOPHY
Undergraduate Course Outline 2016-17

Philosophy 2310F: Philosophy of Physics

Fall Term 2016

Tues 10:30- 12:30, Thurs 11:30- 12:30

TC 341

Instructor: DiSalle

STVH 4142

Office Hours: Wed, Fri 11:30- 1:30

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DESCRIPTION

Modern physics has had a dramatic impact on philosophical ideas about space, time, and matter. From special relativity, general relativity, and quantum mechanics, we get a picture of the world that seems to violate both common-sense ideas and philosophical intuitions. Moreover, all three of these theories were influenced by philosophical ideas about the nature of physical knowledge itself. We will consider some of the philosophical questions that arise from modern physics, including: Are space, time, and motion objective, or merely relative to the observer? Are the laws of physics founded on fact, or on convention? Is the indeterminism of quantum physics a reflection of our ignorance of the true laws of physics, or a genuine feature of the world? Does the world have objective properties at all, independently of our ability to measure them? We will approach these questions by studying original works by physicists as well as contemporary philosophical interpretations.

No detailed knowledge of physics is presupposed, and the fundamental concepts will be introduced in an elementary and intuitive way.

TEXTS

Einstein, *Relativity: The Special and the General Theory* (available at the UWO bookstore)

Rae, *Quantum Physics: Illusion or Reality?* (available at the UWO bookstore)

Supplementary readings to be posted on OWL

REQUIREMENTS

3 short writing assignments (each 15%)

1 final exam (45%) Class

participation (10%)

OBJECTIVES

- To understand philosophical implications of modern theoretical physics
- To understand the theoretical foundations of modern physics
- To relate philosophical views of physics to historical examples
- To understand the impact of philosophical ideas on the development of physics
- To develop competence in critical analysis by careful reading and discussion
- To develop skills of oral expression and argument through class discussion
- To develop writing skills through written assignments

AUDIT

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

DEPARTMENT OF PHILOSOPHY POLICIES

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/policies.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.

ACCOMMODATION

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counselling office of their home Faculty and provide documentation.

Academic accommodation cannot be granted by the instructor or department. Documentation shall be submitted, as soon as possible, to the Office of the Dean of the student's Faculty of registration, together with a request for relief specifying the nature of the accommodation being requested. The UWO Policy on Accommodation for Medical Illness and further information regarding this policy can be found at

http://uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

ACADEMIC OFFENCES

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

PLAGIARISM CHECKING

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com <http://www.turnitin.com>.

SUPPORT SERVICES

Registrarial Services <http://www.registrar.uwo.ca>

Student Support Services <https://student.uwo.ca/psp/heprdweb/?cmd=login>

Services provided by the USC <http://westernusc.ca/services/>

Student Development Centre <http://www.sdc.uwo.ca/>

Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help. Immediate help in the event of a crisis can be had by phoning 519.661.3030 (during class hours) or 519.433.2023 after class hours and on weekends.