

Quantum Field Theory

Module Code	PHYS97079	FHEQ Level	Level 7
Pre-requisites	Foundations of Quantum Mechanics, Advanced Classical Physics	Co-requisites	
Primary Department	Physics		
Module Leader	Prof Toby Wiseman		
Additional Teaching Departments	None		
Teaching Staff	Toby Wiseman + Course Associates		
Programmes on which the Module is delivered			Core/Elective
All UG Physics programmes (F300, F303, F309, F325, F390, F3W3)			Elective
Learning Outcomes	<p>On completing the Quantum Field Theory course, students will be able to:</p> <ul style="list-style-type: none"> • Provide some motivation for the use of fields to describe fundamental particle physics. • Describe a scalar (spin zero) and spin half fermion particle in terms of a classical field theory. • Quantise a these field theories using canonical quantisation. • Understand interactions in the scalar theory in perturbation theory. 		
Description of Content	<p>1 Introduction</p> <p>2 Classical Field Theory</p> <p>3 Quantising a free scalar field theory</p> <p>4 Perturbative interactions and the scattering for scalars</p> <p>5 Quantising a free Dirac fermion</p>		
Assessment		Assessment Type	Weighting
Written Exam		Exam	100%
Learning & Teaching Hours	Independent Study Hours	Placement Hours	Total Hours
57	143	0	200
ECTS Credit	8	CATS Credit	16
Date of introduction	October 2014	Date of Last Revision	22/04/2020