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学部・大学院区分 Undergraduate / Graduate	理学部
時間割コード Registration Code	0681230
科目区分 Course Category	専門基礎科目 Basic Specialized Courses
科目名　【日本語】 Course Title	量子力学１
科目名　【英語】 Course Title	Quantum Mechanics I
コースナンバリングコード Course Numbering Code	
担当教員　【日本語】 Instructor	重森　正樹 ○
担当教員　【英語】 Instructor	SHIGEMORI Masaki ○
単位数 Credits	2
開講期・開講時間帯 Term / Day / Period	春 木曜日 ４時限 Spring Thu 4
授業形態 Course style	講義 Lecture
学科・専攻 Department / Program	G30 Physics
必修・選択 Compulsory / Selected	See the "Course List and Graduation Requirements for your program for your enrollment year.

授業の目的【日本語】 Goals of the Course(JPN)	
授業の目的【英語】 Goals of the Course	Quantum mechanics governs the microscopic aspects of nature and is more fundamental than the classical mechanics which is an approximate effective theory describing the macroscopic aspects of nature. This course aims to develop solid understanding and basic knowledge of quantum mechanics, which is absolutely necessary in various fields of modern physics. We start by introducing fundamental notions such as the wave function and the Schr?dinger equation, and familiarize ourselves with them by studying 1-dimensional problems. Then, after developing the formalism of quantum mechanics, we discuss three dimensional problems such as the hydrogen atom.
到達目標【日本語】 Objectives of the Course(JPN))	
到達目標【英語】 Objectives of the Course	A student who successfully completes this course will be able to: - Explain how to describe the motion of a quantum mechanical system using wave functions and Schrodinger equation - Find stationary states of simple one-dimensional quantum systems and compute their energy - Understand operator formulation of quantum mechanics - Describe quantum mechanical motion in three dimensions
授業の内容や構成 Course Content / Plan	1. The wave function 2. The time-independent Schr?dinger equation 3. Formalism 4. Quantum mechanics in three dimensions
履修条件 Course Prerequisites	Fundamentals of Physics I-IV, Analytical Mechanics I, and Mathematical Physics I
関連する科目 Related Courses	Physics Tutorial IIb (the tutorial for QM I)
成績評価の方法と基準 Course Evaluation Method and Criteria	Attendance/Quizzes: 10%, homework: 30%, exams (midterm and final): 30%+30%=60%
不可(F)と欠席(W)の基準 Criteria for "Fail (F)" & "Absent (W)" grades	The "Absent" grade is reserved for students who withdraw by the deadline. After that day, a letter grade will be given based on the assessment during the semester.
参考書 Reference Book	- S. Gasiorowicz, Quantum Physics, 3rd edition (John Wiley & Sons) - J.J. Sakurai, Modern Quantum Mechanics (Addison-Wesley)
教科書・テキスト Textbook	D. Griffiths, Introduction to Quantum Mechanics, 2nd Ed (Pearson, 2005)
課外学習等（授業時間外学習の指示） Study Load(Self-directed Learning Outside Course Hours)	Biweekly assignments
注意事項 Notice for Students	
他学科聴講の可否 Propriety of Other department student's attendance	
他学科聴講の条件 Conditions for Other department student's attendance	
レベル Level	
キーワード Keyword	
履修の際のアドバイス Advice	
授業開講形態等 Lecture format, etc.	Hybrid or online only, depending on the situation (will use Zoom or Teams)
遠隔授業（オンデマンド型）で行う場合の追加措置 Additional measures for remote class (on-demand class)	Please keep Zoom and Teams upgraded to the latest version.

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