

List of Courses for the Forefront Physics and Mathematics Program to Drive Transformation (FoPM)

		Coursework	Offered by	Course	Credits	Course Code	Notes	
By the end of the Master's course	Elective (2credits)	Academic Writing and Presentation	GS of Science (Common Course)	Scientific Writing, Publication, and Communication	2	35620-5005	By the end of the first Doctoral year for those admitted in the program from the Doctoral course.	
			GS of Mathematical Sciences	Multi-Disciplinary Seminar I	2	45901-74		
	Elective (2credits)	AI Course	Dept. of Physics, GS of Science	Introduction to Data Mining	2	35603-0121		
		Quantum Computing Course	Dept. of Physics, GS of Science	Introduction to Quantum Computation	2	35603-0122		
By the end of the second Doctoral year	Elective (2credits)	SDGs Course	GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Society IV	2	45901-122		
		Executive Program	GS of Engineering	Executive Program	2	Code varies by year		
		Frontiers of Mathematical Sciences and Society	GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Society I	2	45901-119		
			GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Society II	2	45901-120		
		Mathematics in Society Hands-on Course	GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Society III	2	45901-121		
		Mathematics and Physics Entrepreneurship	GS of Engineering (Common Course)	Advanced Course on Entrepreneurship I	1	3799-374	Required both I & II	
GS of Engineering (Common Course)	Advanced Course on Entrepreneurship II		1	3799-375				
By the end of the first Doctoral year	Elective (2credits)	Introductory Course: Quantum Information Science I-II	Dept. of Physics, GS of Science / Dept. of Applied Physics, GS of Engineering	Quantum Information Physics/ Physics in quantum information technology	2	35603-0079/3752-011	Use the course code of your affiliated graduate school for course registration	
			Dept. of Physics, GS of Science / Dept. of Electrical Engineering and Information Systems, GS of Engineering	Nano Quantum Information Electronics I	2	35603-0081/3747-097		
			Dept. of Physics, GS of Science / Dept. of Electrical Engineering and Information Systems, GS of Engineering	Nano Quantum Information Electronics II	2	35603-0082/3747-098		
		Introductory Course: Neurointelligence I-II	Graduate School of Information Science and Technology Mathematical Informatics	Introduction to Neurointelligence	2	4820-1035		
			Contemporary Mathematics for Physicists I-II	GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics I	2	45901-109	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics II	2	45901-110	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics III	2	45901-111	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics IV	2	45901-112	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics V	2	45901-113	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics VI	2	45901-114	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics VII	2	45901-115	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics VIII	2	45901-116	
				GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Physics IX	2	45901-117	
		GS of Mathematical Sciences		Frontiers of Mathematical Sciences and Physics X	2	45901-118		
		Contemporary Physics for Mathematicians I-II	Dept. of Physics, GS of Science	Nonequilibrium Physics	2	35603-0073		
			Dept. of Physics, GS of Science	Special Topics in Physics BXX	1	35603-1500		
			Dept. of Astronomy, GS of Science	Theoretical Astrophysics, Advanced Course I-V	2	35604-0016~20		
			Dept. of Astronomy, GS of Science	Solar Physics, Advanced Course I-V	2	35604-0021~25		
			Dept. of Astronomy, GS of Science	Interstellar Physics, Advanced Course I-V	2	35604-0041~45		
			Dept. of Astronomy, GS of Science	Stellar Physics, Advanced Course I-V	2	35604-0036~40		
			Dept. of Earth and Planetary Science, GS of Science	Geophysical Fluid Dynamics II	2	35616-0008		
			Dept. of Earth and Planetary Science, GS of Science	Atmospheric Physics III	2	35616-2001		
			Dept. of Earth and Planetary Science, GS of Science	Physical Oceanography III	2	35616-2003		
			Dept. of Earth and Planetary Science, GS of Science	Climate Dynamics II	2	35616-1006		
			Dept. of Earth and Planetary Science, GS of Science	Space Plasma Physics I	2	35616-1008		
			Dept. of Earth and Planetary Science, GS of Science	Physics of Magnetosphere I	2	35616-1009		
			Dept. of Earth and Planetary Science, GS of Science	Planetary Exploration Science I	2	35616-2013		
			Dept. of Astronomy, GS of Science	Exoplanets, Advanced Course I	2	35604-0056		
			Dept. of Earth and Planetary Science, GS of Science	Seismic Wave Theory II	2	35616-1062		
		Dept. of Earth and Planetary Science, GS of Science	Physics of Earthquake Generation	2	35616-1034			
		Contemporary Biology for Mathematicians and Physicists I-II	Dept. of Physics, GS of Science	Biophysics I	2	35603-0050		
			Dept. of Physics, GS of Science	Biophysics II	2	35603-0051		
			Dept. of Physics, GS of Science	Universal Biology	2	35603-0114		
			Dept. of Earth and Planetary Science, GS of Science	Evolutionary Paleobiology	2	35616-1043		
			Dept. of Earth and Planetary Science, GS of Science	Evolution of the Biosphere	2	35616-1044		
			Dept. of Earth and Planetary Science, GS of Science	Evolutionary History of Life on Earth	2	35616-1064		
			Dept. of Earth and Planetary Science, GS of Science	Evolutionary Biology	2	35616-1065		
			Dept. of Earth and Planetary Science, GS of Science	Geomicrobiology	2	35616-1073		
		Contemporary Photon Science I-II	Dept. of Biological, GS of Science	Special Lectures on Advanced Photon Life Sciences	2	35617-0003		
			Dept. of Physics, GS of Science	Optical Properties and Spectroscopy of Solids	2	35603-0035		
			Dept. of Physics, GS of Science	Advanced Optical Physics	2	35603-0078		
			Dept. of Physics, GS of Science	Lecture on Advanced Photon Science III	2	35603-1603		
			Dept. of Physics, GS of Science	Lecture on Advanced Photon Science IV	1	35603-1604		
			Dept. of Physics, GS of Science	Lecture on Advanced Photon Science XVI	1	35603-1607		
			Dept. of Astronomy, GS of Science	Optical Infrared Astronomy, Advanced Course I-V	2	35604-0011~15		
			Dept. of Astronomy, GS of Science	High Energy Astronomy, Advanced Course I-V	2	35604-0046~50		
			Dept. of Chemistry, GS of Science	Lecture on Advanced Optical Science I	2	35606-0079		
			Dept. of Chemistry, GS of Science	Lecture on Advanced Optical Science II	2	35606-0080		
			Dept. of Chemistry, GS of Science	Laboratory Course of Advanced Optical Science I	1	35606-0081		
			Dept. of Chemistry, GS of Science	Laboratory Course of Advanced Optical Science II	1	35606-0082		
			Dept. of Chemistry, GS of Science	Basic Physical Chemistry I	1	35606-0048		
			Dept. of Chemistry, GS of Science	Basic Physical Chemistry II	1	35606-0049		
			Dept. of Chemistry, GS of Science	Basic Inorganic/Analytical Chemistry I	1	35606-0052		
Dept. of Chemistry, GS of Science	Basic Inorganic/Analytical Chemistry II	1	35606-0053					
Astroinformatics I-II	Dept. of Astronomy, GS of Science	Optical Infrared Astronomy, Advanced Course I-V	2	35604-0011~15				
	Dept. of Astronomy, GS of Science	Radio Astronomy, Advanced Course I-V	2	35604-0026~30				
	Dept. of Astronomy, GS of Science	High Energy Astronomy, Advanced Course I-V	2	35604-0046~50				
Applied Quantum Beams I-II	Dept. of Physics, GS of Science	Particle Accelerators	2	35603-0017				
Math for Industry I-II	GS of Mathematical Sciences	Frontiers of Mathematical Sciences and Society I	2	45901-119				

*Some courses may not be offered depending on the academic year.