

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) GS of Mathematical Sciences	Scientific Writing, Publication, and Communication Multi-Disciplinary Seminar X	2 2	35620-5005	
	Elective (2credits)	AI Course Quantum Computing Course	Dept. of Physics, GS of Science Dept. of Physics, GS of Science	Introduction to Data Mining Introduction to Quantum Computation	2 2	35603-0121 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	
			GS of Frontier Sciences	Proactive Environmental Studies I	2	47000-62	
		Executive Program	GS of Interdisciplinary Information Studies	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)	Entrepreneurship I	1	3799-371	required both I&II		
	GS of Engineering (Common Course)	Entrepreneurship II	1	3799-372			
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	Dept. of Physics, GS of Science	Introductory Course for Neuroscience and Neural Computation	2	35603-0123	
		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.