Astronomical Science

Course Code	Course	Credit	Content of Subject
40ASS001**	Science Communication	2	Based on various examples of astronomy, the way of research outcomes to contribute to the public (public outreach) is lectured.
40ASS002**	Introduction to Observational Astronomy 1	2	We will give a contemporary view of the Universe, obtained from optical, infrared, and radio observations on stars, interstellar matter, galaxy and cluster of galaxies.
40ASS003**	Introduction to Observational Astronomy 2	2	Structure, origin and evolution of solar system bodies such as planets and satellites.
40ASS004**	Introduction to Theoretical Astronomy	2	We will discuss contemporary view of theoretical astronomy and astrophysics. Subjects include the structure and evolution of stars and galaxies, the origin of the planetary systems, and others.
40ASS005**	Introduction to Optical/Infrared Telescope	2	A principle of optical and infrared telescopes is presented as well as the basics of observation such as spectroscopy and photometry.
40ASS006**	Introduction to Optics	2	Basics of optics are lectured. Topics will be aberration, and the methods to evaluate a optical system.
40ASS007**	Introduction to Radio Telescope	2	Lecture on the principle of radio telescope, the design and production, and basics of its control.
40ASS008**	Introduction to Radio Observation System	2	Lecture on radio receivers, which includes low-temperature techniques and digital processing.
40ASS009**	Introduction to Radio Astronomy Instrumentation and Observations	2	Lecture on principles of various detectors and spectroscopic methods in radio observations.
40ASS010**	Introduction to Astronomical Instruments	2	Principles of observational instruments for various wavelengths are lectured from the physical basics.
40ASS011**	Training of Presentation in English	1	In order to facilitate presentations in international conferences, presentation techniques are trained by specialists in English conversation. This class enphasizes practice on how to present and how to prepare presentaion documents.
40ASS012**	Optical/Infrared Astronomy 1	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of optical/infrared astronomy.
40ASS013**	Optical/Infrared Astronomy 2	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of optical/infrared astronomy.
40ASS014**	Optical/Infrared Astronomy 3	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of optical/infrared astronomy.
40ASS015**	Optical/Infrared Astronomy 4	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of optical/infrared astronomy.
40ASS016**	Optical/Infrared Astronomy 5	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of optical/infrared astronomy.
40ASS017**	Optical/Infrared Astronomy Seminar 1	2	Seminar on the optical/infrared astronomy.

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40ASS018**	Optical/Infrared Astronomy Seminar 2	2	Seminar on the optical/infrared astronomy.
40ASS019**	Radio Astronomy 1	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of radio astronomy.
40ASS020**	Radio Astronomy 2	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of radio astronomy.
40ASS021**	Radio Astronomy 3	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of radio astronomy.
40ASS022**	Radio Astronomy 4	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of radio astronomy.
40ASS023**	Radio Astronomy 5	2	Lecture on astronomical objects, phenomena of astronomical objects and research methods in an area of radio astronomy.
40ASS024**	Radio Interferometry	2	Principle of radio interferometers, necessary observational technology and methods of data reduction are lectured.
40ASS025**	Radio Astronomy Seminar 1	2	Seminar on radio observation and its instruments.
40ASS026**	Radio Astronomy Seminar 2	2	Seminar on radio observation and its instruments.
40ASS027**	General Relativity	2	Lecture on the general relativity.
40ASS028**	Gravitational Dynamics	2	Lecture on basics of stellar dynamics (gravitational many-body problem and structure of galaxies) and celestial mechanics (planetary many-body problem and their orbital evolution).
40ASS029**	Solar System Astronomy	2	Spin motion and deformation of planets are lectured based on geophysical methods.
40ASS030**	Nuclear Astrophysics	2	The lecture aims to study the stellar evolution, supernova explosion and galactic chemical evolution based on understanding the elementary processes in these macroscopic phenomena in the universe.
40ASS031**	Solar/Stellar Physics	2	Interior structures of our sun and stars and their evolution are lectured.
40ASS032**	Cosmic Plasma Physics 1	2	Lecture on theoretical and/or observational aspects of surface activity and atmospheric structure of our sun and other stars.
40ASS033**	Cosmic Plasma Physics 2	2	Lecture on theoretical and/or observational aspects of surface activity and atmospheric structure of our sun and other stars.
40ASS034**	Astrophysics 1	2	Lecture on theoretical and observational aspects of astrophysical objects in various hierarchical levels, such as the evolution of the early universe, the formation and evolution of large-scale structure of the universe, galaxies, and stars, the interstellar medium, the formation of star and planetary systems.

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Course Code	Course	Credit	Content of Subject
40ASS035**	Astrophysics 2	2	Lecture on theoretical and observational aspects of astrophysical objects in various hierarchical levels, such as the evolution of the early universe, the formation and evolution of large-scale structure of the universe, galaxies, and stars, the interstellar medium, the formation of star and planetary systems.
40ASS036**	Astrophysics 3	2	Lecture on theoretical and observational aspects of astrophysical objects in various hierarchical levels, such as the evolution of the early universe, the formation and evolution of large-scale structure of the universe, galaxies, and stars, the interstellar medium, the formation of star and planetary systems.
40ASS037**	Astronomical Data Reduction	2	Lectures on astronomical data reduction, including image processing, data archive and related software.
40ASS038**	Statistics for Astronomy	2	The course introduces statistical methods of analyses that are necessary in interpreting data in various fields of astronomy. While astronomical applications are the goal, the course starts from the basics.
40ASS039**	Simulation Astronomy	2	Lecture on method of simulation for various researches of astronomy.
40ASS040**	Common Basic Astronomies Seminar 1	2	Seminar on database astronomy, solar/cosmic plasma, and theoretical astronomy.
40ASS041**	Common Basic Astronomies Seminar 2	2	Seminar on database astronomy, solar/cosmic plasma, and theoretical astronomy.
40ASS042**	Extrasolar planetary science	2	The course introduces observational and data-analysis methods used in exoplanet research, as well as its latest results.
40ASS043**	Planetary system formation	2	The course covers theoretical and observational studies of planetary system formation, starting from the basics but introducing the latest topics as well.
40ASS044**	Gravitational Wave Astronomy	2	Lecture on gravitational wave (GW) astronomy. GW theory is introduced. GW detectors and very recent GW detections (2015-2017) are presented.
40ASS045**	Basic Seminar 1	2	Seminar on basic astronomy textbooks.
40ASS046**	Basic Seminar 2	2	Seminar on basic astronomy textbooks.
40ASS047**	Basic Seminar 3	2	Seminar on basic astronomy textbooks.
40ASS048**	Basic Seminar 4	2	Seminar on basic astronomy textbooks.
40ASS049**	Basic Seminar 5	2	Seminar on basic astronomy textbooks.
40ASS050**	Basic Seminar 6	2	Seminar on basic astronomy textbooks.
40ASS051**	Interdisciplinary Research 1	4	Seminar on current progress of astronomical sciences (3rd and 4th years).
40ASS052**	Interdisciplinary Research 2	2	Seminar on current progress of astronomical sciences (4th year).

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40ASS053**	Exercise in Scientific English	2	According to the achievement of respective students, small group exercise is given on the presentation in English, conversation and scientific writing.
40ASS054**	Observation Experiment 1	2	Experiment of observation at observatory.
40ASS055**	Observation Experiment 2	2	Experiment of observation at observatory.
40ASS056**	Optical/Infrared Observation Instruments	2	Principles of various detectors in optical and infrared observations are lectured.
40ASS057**	Radio Astronomy Special Lecture	2	Lecture on Very-Long-Baseline-Interferometer. Principles and methods of data reduction are lectured.
40ASS058**	Special Lecture 1	1	A specific research area of astronomy is overviewed.
40ASS059**	Special Lecture 2	1	A specific research area of astronomy is overviewed.
40ASS060**	Special Lecture 3	1	A specific research area of astronomy is overviewed.
40ASS061**	Special Lecture 4	1	A specific research area of astronomy is overviewed.
40ASS068**	Special Lecture 11	2	A specific research area of astronomy is overviewed.
80ASS001**	Progress Report	6	This corresponds to a Master Thesis. Graduate students are asked also to have oral presentations.
80ASS002**	Colloquium Ⅰ	2	Colloquium on contemporary astronomy. Graduate students present and discuss progress of their own research and/or of their fields. (1st year)
80ASS003**	Colloquium Ⅱ	2	Colloquium on contemporary astronomy. Graduate students present and discuss progress of their own research and/or of their fields. (2nd year)
80ASS004**	Colloquium Ⅲ	2	Colloquium on contemporary astronomy. Graduate students present and discuss progress of their own research and/or of their fields. (3rd year)
80ASS005**	Colloquium Ⅳ	2	Colloquium on contemporary astronomy. Graduate students present and discuss progress of their own research and/or of their fields. (4th year)
80ASS006**	Colloquium Ⅴ	2	Colloquium on contemporary astronomy. Graduate students present and discuss progress of their own research and/or of their fields. (5th year)