

**Course List and Graduation Requirements for International Programs,
Physics Program – School of Science (for Undergraduates Enrolled in October 2020)**

| Course Category | | Course | Term | Credits | | | | | | |
|---|--|---|----------------------------------|---------------|-------------|---------------------|-------------|---|------|---|
| | | | | No of Credits | Compulsory | Compulsory Elective | Elective | Minimum Requirement | | |
| Basic General Education Courses | First Year Seminar | First Year Seminar A | I | 2 | 2 | | | 2 | | |
| | Language and Culture | Japanese/Languages except English | I, II | 12 | 12 | | | 12 | | |
| | Health and Sports Science | Health and Sports Science: Lecture | | I | 2 | 2 | | | 2 | |
| | | Health and Sports Science: Practicum I | | II | 1 | 1 | | | 2 | |
| | | Health and Sports Science: Practicum II | | III | 1 | 1 | | | 2 | |
| | Partial Sum | | | | | 18 | | | 18 | |
| | Basic Courses in Humanities and Social Sciences ★ | History | | 2022-II | 2 | | | 2 | 6 | |
| | | Literature | | II | 2 | | | 2 | | |
| | | Comparative Studies of Cultures | | I | 2 | | | 2 | | |
| | Liberal Education Courses in Humanities and Social Sciences ★ | Introduction to Cultural Studies | | 2022-II | 2 | | | 2 | | |
| Culture and Representation | | | 2022-II | 2 | | | 2 | | | |
| Past and Present of Democracy | | | I | 2 | | | 2 | | | |
| International Society of Globalization Age | | | 2021-I | 2 | | | 2 | | | |
| Liberal Education Courses in Natural Sciences | Biotechnology | | I | 2 | | | 2 | 4 consisting of 2 credits from LECNS, see 6page 1(3) | | |
| | Modern Biology | | II | 2 | | | 2 | | | |
| | Science of Materials | | III | 2 | | | 2 | | | |
| Liberal Education Courses in Interdisciplinary Fields ★ | Exploration of Japan: From the Outside Looking Inside | | II | 2 | | | 2 | | | |
| | Introduction to Career Development Theory | | I | 2 | | | 2 | | | |
| | Preparedness for Imminent Natural Disasters | | III | 2 | | | 2 | | | |
| | Thinking about Japanese Society in the 21st Century from Gender Perspectives | | III | 2 | | | 2 | | | |
| | Special Lecture (Studium Generale I) | | I | 2 | | | 2 | | | |
| | Special Lecture (Studium Generale II) | | II | 2 | | | 2 | | | |
| | Special Lecture (Go in Japanese Culture) | | III | 1 | | | 1 | | | |
| Special Lecture (Summer Camp for General Academic Skills) | | IV | 2 | | | 2 | | | | |
| Basic Courses in Natural Sciences | Calculus I | | I | 2 | | 2 | | 6 | | |
| | Calculus II | | II | 2 | | 2 | | | | |
| | Linear Algebra I | | I | 2 | | 2 | | | | |
| | Linear Algebra II | | II | 2 | | 2 | | | | |
| | Complex Analysis | | III | 2 | | 2 | | | | |
| | Basic Courses in Natural Sciences | Fundamentals of Physics I | | I | 2 | 2 | | | 6 | |
| | | Fundamentals of Physics II | | I | 2 | 2 | | | | |
| | | Fundamentals of Physics III | | II | 2 | 2 | | | | |
| | | Fundamentals of Chemistry I | | I | 2 | | 2 | | | |
| | | Fundamentals of Chemistry II | | II | 2 | | 2 | | | |
| | | Basic Courses in Natural Sciences | Fundamentals of Biology I | | I | 2 | | 2 | | 6 |
| | | | Fundamentals of Biology II | | II | 2 | | 2 | | |
| | | | Fundamentals of Earth Science I | | I | 2 | | 2 | | |
| | | | Fundamentals of Earth Science II | | II | 2 | | 2 | | |
| | | | Laboratory in Physics | | III | 1.5 | | 1.5 | | |
| Laboratory in Chemistry | | | II | 1.5 | | 1.5 | | | | |
| Laboratory in Biology | | | II | 1.5 | | 1.5 | | | | |
| Sum for Liberal Arts and Sciences Courses | | | | | 24 | 6 | 17.5 | 47.5 | | |
| Basic Specialized Course | Compulsory Courses ① | Fundamental Physics Tutorial Ia | I | 1 | 1 | | | 22.5 | | |
| | | Fundamental Physics Tutorial Ib | I | 1 | 1 | | | | | |
| | | Mathematical Physics I | III | 2 | 2 | | | | | |
| | | Mathematical Physics II | III | 2 | 2 | | | | | |
| | | Mathematical Physics Tutorial I | III | 1 | 1 | | | | | |
| | | Mathematical Physics Tutorial II | III | 1 | 1 | | | | | |
| | | Analytical Mechanics I | III | 2 | 2 | | | | | |
| | | Statistical Physics I (Thermodynamics) | III | 2 | 2 | | | | | |
| | | Physics Tutorial Ia | III | 0.5 | 0.5 | | | | | |
| | | Physics Tutorial Ib | III | 0.5 | 0.5 | | | | | |
| | | Electricity and Magnetism | IV | 2 | 2 | | | | | |
| | | Quantum Mechanics I | IV | 2 | 2 | | | | | |
| | | Analytical Mechanics II | IV | 2 | 2 | | | | | |
| | | Physics Tutorial IIa | IV | 1 | 1 | | | | | |
| | | Physics Tutorial IIb | IV | 1 | 1 | | | | | |
| | Physics Tutorial IIc | IV | 1.5 | 1.5 | | | | | | |
| | Partial Sum | | | | | 22.5 | 0 | 0 | 22.5 | |
| | Elective Courses ② | Mathematics Tutorial Ia | | I | 1 | | | 1 | [23] | |
| | | Mathematics Tutorial Ib | | I | 1 | | | 1 | | |
| | | Mathematics Tutorial IIa | | II | 1 | | | 1 | | |
| Mathematics Tutorial IIb | | | II | 1 | | | 1 | | | |
| Fundamental Physics Tutorial II a | | | II | 1 | | | 1 | | | |
| Fundamental Physics Tutorial II b | | | II | 1 | | | 1 | | | |
| Elective Courses ③ | Physical Chemistry I | | III | 2 | | | 2 | (-8) | | |
| | Earth and Planetary Science | | V | 2 | | | 2 | | | |
| Sum | | | | | 22.5 | 0 | [20.5] | [43] | | |
| Courses in Specialized Fields | Compulsory Courses ④ | Quantum Mechanics II | V | 2 | 2 | | | 14 | | |
| | | Statistical Physics II | V | 2 | 2 | | | | | |
| | | Physics Tutorial IIIa | V | 1 | 1 | | | | | |
| | | Physics Tutorial IIIb | V | 1 | 1 | | | | | |
| | | Physics Laboratory I | V | 4 | 4 | | | | | |
| | | Physics Laboratory II | VI | 4 | 4 | | | | | |
| | Compulsory Elective Courses ⑤ | Physics Seminar I | | | 4 | | 4 | 24 | | |
| | | Physics Seminar II | | | 4 | | 4 | | | |
| | | Physics Seminar III | | | 4 | | 4 | | | |
| | | Physics Seminar IV | | | 4 | | 4 | | | |
| | | Physics Seminar V | | | 4 | | 4 | | | |
| | | Physics Seminar VI | | | 4 | | 4 | | | |
| | Graduation Research-Theoretical studies | | VII, VIII | 16 | | 16 | | | | |
| | Graduation Research-Experiments | | VII, VIII | 20 | | 20 | | | | |
| Specialized Courses | Elective Courses ⑥ | Mechanics of Continuous Media | IV | 2 | | | 2 | [23] | | |
| | | Biophysics | IV | 2 | | | 2 | | | |
| | | Astrophysics | IV | 2 | | | 2 | | | |
| | | Optics | VI | 2 | | | 2 | | | |
| | | Condensed Matter Physics I | V | 2 | | | 2 | | | |
| | | Particle Physics | V | 2 | | | 2 | | | |
| | | Chemical Physics | V | 2 | | | 2 | | | |
| | | Statistical Physics III | VI | 2 | | | 2 | | | |
| | | Physics Tutorial IVa | VI | 0.5 | | | 0.5 | | | |
| | | Physics Tutorial IVb | VI | 0.5 | | | 0.5 | | | |
| | | Quantum Mechanics III | VI | 2 | | | 2 | | | |
| | | Condensed Matter Physics II | VI | 2 | | | 2 | | | |
| Condensed Matter Physics III | VII | 2 | | | 2 | | | | | |
| Elective Courses ⑦ | Computer Software I | | I | 2 | | | 2 | (-8) | | |
| | Computer Software II | | IV | 2 | | | 2 | | | |
| | Fluid Mechanics and Tutorial | | IV | 2.5 | | | 2.5 | | | |
| | Computational Chemistry | | V | 2 | | | 2 | | | |
| | Scientific Measurements | | V | 2 | | | 2 | | | |
| Sum | | | | | 14 | 24 | [23] | [61] | | |
| Sum for Courses in Specialized Fields | | | | | 36.5 | 24 | 23 | 83.5 | | |
| Total Sum | | | | | 60.5 | 30 | 40.5 | 131 | | |

• Confirm the prerequisites for each subject with the syllabus.

• Refer to the details of the Term on the page 3 of "AY2020 Liberal Arts and Sciences Course Registration Guide for International Programs Students"

★ Some of the courses on this column are offered in every other year. Confirm the offering term with the "Liberal Arts and Sciences Class Timetable" of the said year.

**Graduation Requirements for International Programs,
Physics Program – School of Science (for Undergraduate)**

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| <p>1. Liberal Arts and Sciences Courses: A combined total of at least 47.5 credits must be acquired.</p> <p>(1) Basic General Education Courses: A total of at least 18 credits must be acquired, consisting of 2 credits from first year seminar A, 12 credits from Japanese/Languages except English, 2 credits of Health and Sports Science: Lecture and at least 2 credits from Health and Sports Science: Practicum courses.</p> <p>(2) Basic Courses in Humanities and Social Sciences and Liberal Education Courses in Humanities and Social Sciences: A total of at least 6 elective course credits must be acquired from these two Courses Categories.</p> <p>(3) Liberal Education Courses in Natural Sciences and Liberal Education Courses in Interdisciplinary Fields: A total of at least 4 elective course credits must be acquired from these two Course Categories, consisting of 2credits from Liberal Education Courses in Natural Sciences.</p> <p>(4) Basic Courses in Natural Sciences: A total of at least 19.5 credits must be acquired, consisting of 6 compulsory course credits from three Fundamentals of Physics courses and a total of at least 13.5 course credits from the remaining Basic Courses in Natural Sciences, which should include a total of at least 6 compulsory elective course credits from 5 Fundamental Mathematics courses, at least 1.5 course credit from three Laboratory courses, and a total of at least 6 course credits from six elective courses, i.e. Fundamentals of Chemistry I and II, Fundamentals of Biology I and II, and Fundamentals of Earth Science I and II.</p> <p>2. Courses in Specialized Fields: A combined total of at least 83.5 course credits must be acquired from these course categories.</p> <p>(1) Compulsory Courses: A total of at least 14 course credits must be acquired from Compulsory Specialized Courses ④, and that of at least 22.5 course credits must be acquired from Basic Specialized Courses ①.</p> <p>(2) Compulsory Elective Courses: A total of at least 24 course credits must be acquired from Compulsory Elective Courses ⑤.</p> <p>(3) Elective Courses: A total of at least 23 course credits must be acquired from Elective Courses ② and ⑥. However a total of at most 8 elective course credits from Elective Courses ③ and ⑦ may be included in the total number of 23 elective course credits.</p> |
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**Requirements for Advancement for International Programs,
Physics Program - School of Science (for Undergraduate)**

| Time the Judgment is made | Course Categories and Required Number of Credits | Students unable to advance to the next year |
|-------------------------------|---|---|
| At the End of the First Grade | A total of a minimum of 20 course credits must be acquired at the end of the first grade. | 1. Remain in the first year. 2. Must take no longer than 5 years to complete their first year. [Duration of enrollment (8 years)] minus [second to forth years(3 years)] 3. Students unable to advance to the next year within the 5-year limit stated in 2. above will be expelled from the school. |