Master’s Programme in Integrative Plant Sciences (IPS) degree structure 2020-2023 and a 2-years’ model syllabus

The degree structure 2020-2023 and a two-year model syllabus for the students, who start in the autumn 2020 (in an even year)

**MSc degree in Integrative Plant Sciences (IPS), 120 cr**

**IPS-100 Integrative Plant Sciences, Advanced studies, 80 cr**

**Joint studies in the Master’s Programme, 50 cr**
- IPS-001 Personal Study Plan (PSP), 0 cr (1/I)
- IPS-002 Plants in a Changing World, 5 cr (1/I)
- IPS-003 Design & Planning of Biological Experiments, 5 cr (1/II)
- IPS-004 Master’s Thesis Seminar, 5 cr (2/III-IV)
- IPS-005 Literature Examination, 5 cr (2/III or IV)
- IPS-006 Master’s Thesis, 30 cr (2/IV)

**VIIKB-001 Maturity Essay, 0 cr (2/IV)**

**Alternative modules, 30 cr (choose 2 x 15 cr)**

**IPS-110 Plant Growth and Developmental Biology 15 cr:**
- IPS-111 Plant Developmental Biology, 5 cr (1/III)
- IPS-112 Wood Structure, Growth and Differentiation, 5 cr (1 or 2/II)
- IPS-113 Lectures in Plant Physiology, 5 cr (1 or 2/I)

**IPS-120 Plant Biotechnology and Molecular Biology 15 cr:**
- IPS-121 Plant Biochemistry and Cell Biology, 5 cr (1/I)
- IPS-122 Plant Biotechnology and Molecular Biology, 5 cr (1/II)
- IPS-123 Laboratory Course in Plant Biotechnology, 5 cr (1/III-IV)

**IPS-130 Advanced Plant Molecular Biology 15 cr:**
- IPS-131 Advanced Course in Plant Molecular Biology, 15 cr (1/IV)

**IPS-140 Plants in Their Environment 15 cr:**
- IPS-141 Sensory and Physiological Ecology of Plants, 5 cr (EVEN YEARS 2/III)
- IPS-142 Plant Adaptation, 5 cr (EVEN YEARS 1/I)

**IPS-150 Subarctic Ecology and Flora 15 cr:**
- IPS-154 Subarctic Habitats and Biota, 5 cr (EVEN YEARS 2/IV+SUMMER)
- IPS-153 Flora of Subarctic Europe, 5 cr (web)
- IPS-172 Polypores as Tools in Forest Conservation, 5 cr (ODD YEARS 2/I)

**IPS-160 Taxonomy and Systematics 15 cr:**
- IPS-161 Biological Collections, 5 cr (EVEN YEARS 1/I)
- IPS-164 Introduction to Phylogenetics, 10 cr (EVEN YEARS 1/II)

**IPS-170 Diversity and Distribution of Plants and Fungi 15 cr:**
- Elective, 15 cr
- IPS-172 Polypores as Tools in Forest Conservation, 5 cr (ODD YEARS 2/I)
- IPS-173 Mapping Plant Distributions, 5 cr (EVEN YEARS 2/IV+SUMMER)
- IPS-174 Tropical Flora of East Africa, 5 cr (web)
- IPS-175 Flora and Vegetation of East Africa, 5 cr (EVEN YEARS 1/II+ODD II)
- EEB-301 Fundamentals of Conservation Biology, 5 cr (web)
- IPS-177 Flora of Southern Finland, 5 cr (web)
- IPS-178 Threatened Vascular Plants of Finland, 5 cr (web)

**Optional modules, 0-40 cr (examples)**
- FOR-306 Forest Biotechnology, 30 cr (*see the course list below)
- FOR-307 Forest Production Ecology, 25 cr (*see the course list below)
- AGRI-230 Plant Breeding, 15 cr (*see the course list below)
- AGRI-250 Plant Pathology, 15 cr (*see the course list below)
- VIIKB-200 Study Module Accomplished at Another University, 15-45 cr

**Other studies in MSc degree, 0-40 cr (examples)**
- Career orientation and professional skills studies (examples)

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<tr>
<th>Course Code</th>
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<td>IPS-009</td>
<td>Practical Training, 5-10 cr</td>
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<td>IPS-010</td>
<td>Learning by Doing in Scientific Natural History Collections, 5 cr</td>
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<td>Project Work, 5 cr</td>
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<td>IPS-012</td>
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<td>IPS-013</td>
<td>Symposia and Seminars, 5 cr</td>
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_A two-year model syllabus for 2020-2021 + 2021-2022_

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_X = can be completed at any time, no fixed periods or years_

_( ) = can be completed either in 2020-2021 or 2021-2022_
IPS-014 Learning by Teaching, 2-5 cr
VIIXK-002 Tutoring, 5 cr (1/IV and 2/orientation week)
VIIXK-005 Demanding Participation in Admin.Bodies and Student Org., 2-5 cr

Other optional studies (examples)
VIIXK-003 Orientation Week, 1 cr (orientation week)
KK-ENG501, Academic Writing 1: Principles and Practice (MSc Students) (CEFR C1), 2 cr (1/I-II)
KK-ENG502, Academic Writing 2: Process and Feedback (MSc Students) (CEFR C1), 2 cr (2/I)
VIIXK-100 Studies Accomplished at Another University, 1-15 cr

*Course list of optional modules (examples):

FOR-306 Forest Biotechnology 30 cr:
FOR-231 Basic Biotechnology Applications in Forestry, 5 cr (1 or 2/I)
IPS-112 Wood Structure, Growth and Differentiation, 5 cr (1 or 2/II)
FOR-232 Forest Microbiology, 10 cr (1 or 2/II)
FOR-233 Advanced Forest Mycology and Pathology, 10 cr (1 or 2/II)

FOR-307 Forest Production Ecology 25 cr:
FOR-211 Tree Ecophysiology, 5 cr (1 or 2/II)
FOR-212 Forest Production, Growth and Yield, 5 cr (1 or 2/III)
FOR-213 Field Course in Biogeochemistry and Production Ecology, Scr (1/SUMMER)
FOR-215 Mitigation of Climate Change in Forestry, 5 cr (EVEN YEARS 2/III)
FOR-216 Adaptation of Forestry to Climate Change, 5 cr (ODD YEARS 2/III)

AGRI-230 Plant Breeding 15 cr:
AGRI-231 Conservation of Plant Genetic Resources, 5 cr (EVEN YEARS 2/IV)
AGRI-232 Breeding of Crop Plants, 5 cr (ODD YEARS 2/II)
AGRI-233 Forest Tree Breeding, 5 cr (EVEN YEARS 1/I)

AGRI-250 Plant Pathology 15 cr:
AGRI-251 Fungal Plant Pathogens, 5 cr (ODD YEARS 2/II)
AGRI-252 Plant Pathogenic Bacteria, 5 cr (EVEN YEARS 2/III)
AGRI-253 Plant Virology, 5 cr (ODD YEARS, 1/III)

+ Other optional study units from the Plant Production Sciences

The degree structure 2020-2023 and a two-year model syllabus for the students, who start in the autumn 2020 (in an even year)

**MSc degree in Integrative Plant Sciences (IPS), study track for Biology teachers, 120 cr**

IPS-101 Integrative Plant Sciences, study track for Biology teachers, Advanced studies, 60 cr

Joint studies in the Master's Programme, 45 cr
IPS-001 Personal Study Plan (PSP), 0 cr (1/I)
IPS-002 Plants in a Changing World, 5 cr (1/I)
IPS-003 Design & Planning of Biological Experiments, 5 cr (1/II)
IPS-004 Master’s Thesis Seminar, 5 cr (2/III-IV)
IPS-006 Master’s Thesis, 30 cr (2/IV)
VIIXK-001 Maturity Essay, 0 cr (2/IV)

Alternative modules, 15 cr (choose 1 x 15 cr)

IPS-110 Plant Growth and Developmental Biology 15 cr:
IPS-111 Plant Developmental Biology, 5 cr (1/II)
IPS-112 Wood Structure, Growth and Differentiation, 5 cr (1 or 2/II)
IPS-113 Lectures in Plant Physiology, 5 cr (1 or 2/II)

IPS-120 Plant Biotechnology and Molecular Biology 15 cr:
IPS-121 Plant Biochemistry and Cell Biology, 5 cr (1/II)
IPS-122 Plant Biotechnology and Molecular Biology, 5 cr (1/II)
IPS-123 Laboratory Course in Plant Biotechnology, 5 cr (1/III-IV)

IPS-130 Advanced Plant Molecular Biology 15 cr:
IPS-131 Advanced Course in Plant Molecular Biology, 15 cr (1/IV)

A two-year model syllabus for 2020-2021 + 2021-2022

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(*a tentative model, changes possible)

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(*a tentative model, changes possible)
IPS-140 Plants in Their Environment 15 cr:
IPS-141 Sensory and Physiological Ecology of Plants, 5 cr (EVEN YEARS 2/III)
IPS-142 Plant Adaptation, 5 cr (EVEN YEARS 1/I)
IPS-143 Plants, Ecosystems and Bioresilience, 5 cr (ODD YEARS 1/III)

IPS-150 Subarctic Ecology and Flora 15 cr:
IPS-154 Subarctic Habitats and Biota, 5 cr (EVEN YEARS 2/IV+SUMMER)
IPS-153 Flora of Subarctic Europe, 5 cr (web)
IPS-172 Polypores as Tools in Forest Conservation, 5 cr (ODD YEARS 2/I)

IPS-160 Taxonomy and Systematics 15 cr:
IPS-161 Biological Collections, 5 cr (EVEN YEARS 1/I)
IPS-164 Introduction to Phylogenetics, 10 cr (EVEN YEARS 1/II)

IPS-170 Diversity and Distribution of Plants and Fungi 15 cr:
Elective, 15 cr
IPS-172 Polypores as Tools in Forest Conservation, 5 cr (ODD YEARS 2/I)
IPS-173 Mapping Plant Distributions, 5 cr (EVEN YEARS 2/IV+SUMMER)
IPS-174 Tropical Flora of East Africa, 5 cr (web)
IPS-175 Flora and Vegetation of East Africa, 5 cr (EVEN YEARS 1/II+ODD III)
EEB-301 Fundamentals of Conservation Biology, 5 cr (web)
IPS-176 Flora of Southern Finland, 5 cr (web)
IPS-177 Threatened Vascular Plants of Finland, 5 cr (web)

Aineenopettajan pedagogiset opinnot, 60 op (in Finnish)