

Bachelor of Science in Natural Resources

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Common First Year Requirements

Required Courses	Credits	Done	Notes
BIOL 121 ¹ Genetics, Evolution and Ecology	3	<input type="checkbox"/>	
CHEM 111 or 121 ² Structure and Bonding in Chemistry	4	<input type="checkbox"/>	
ECON 101 or FRST 101 ³ Principles of Macroeconomics	3	<input type="checkbox"/>	
NRES 150 Scholarly Writing and Argumentation in Forestry or WRDS 150B Writing and Research in the Disciplines	3	<input type="checkbox"/>	
MATH 100 or 180 ⁴ Differential Calculus with Applications	3/4	<input type="checkbox"/>	
NRES 100 Pursuing Innovative Solutions to Big Questions or FRST 110 ⁵ Land One: First-Year Integrative Seminar	3	<input type="checkbox"/>	
NRES 103 Pathways in Natural Resources	1	<input type="checkbox"/>	
Major-specific courses ⁶	12/13	<input type="checkbox"/>	
Total Credits	32/33/34	<input type="checkbox"/>	

¹ Students without Biology 11 or 12 should take BIOL 111 as one of their first-year electives prior to taking BIOL 121.

² Students without Chemistry 12 need to take the Chemistry Basic Skills Test to determine if they should take CHEM 111 or CHEM 100: <https://www.chem.ubc.ca/ubc-chemistry-basic-skills-test-information>.

³ FRST 101 is restricted to students in the Land One cohort.

⁴ Students without previous knowledge of calculus may take MATH 180 (4 credits), or MATH 110 (6 credits) if a grade of 80% in MATH 12 (or equivalent course) was not achieved, but the credit difference cannot be applied towards program elective requirements. MATH 190 may also be taken, but is a terminal course and not recommended for Forest Sciences or Wood Products majors or students who plan to take specializations requiring further MATH courses. Please refer to "First Year Calculus Choices" on <https://www.math.ubc.ca/undergraduate/advising-and-resources/first-year-calculus-options> for more information.

⁵ FRST 110 is restricted to students in the Land One cohort.

⁶ See Major-specific courses listed starting on the next page.

Major-Specific First Year Courses

Major in Bioeconomy Sciences & Technology

First Year

Required Courses	Credits	Done	Notes
BIOL 112 Biology of the Cell	3	<input type="checkbox"/>	
CHEM 123 Thermodynamics, Kinetics and Organic Chemistry	4	<input type="checkbox"/>	
GEOS 102 Our Changing Environment: Climate and Ecosystems Or CONS 210 Visualizing Climate Change	3	<input type="checkbox"/>	
Electives ⁷	3	<input type="checkbox"/>	
Total Credits	13	<input type="checkbox"/>	

Major in Conservation

First Year

Required Courses	Credits	Done	Notes
APBI 200 Introduction to Soil Science	3	<input type="checkbox"/>	
NRES 225 ^{8 9} Communication Strategies or ENGL 110 Approaches to Literature and Culture or ENGL 111 Approaches to Language and Communication	3	<input type="checkbox"/>	
GEOS 103 Our Changing Environment: Water and Landscapes	3	<input type="checkbox"/>	
Electives	3	<input type="checkbox"/>	
Total Credits	12	<input type="checkbox"/>	

⁷ Students interested in pursuing the minor in commerce must take ECON 102 as an elective

⁸ Students who want to take NRES 225 need to take either ENGL 110, ENGL 111, NRES 150, or WRDS 150B first.

⁹ NRES 225 does not count toward the dual degree with Education. Students interested in this option should take ENGL 110 or 111.

Major in Forest Management

First Year

Required Courses	Credits	Done	Notes
APBI 200 Introduction to Soil Science	3	<input type="checkbox"/>	
FRST/NRES 231 Introduction to Biometrics	3	<input type="checkbox"/>	
FRST/NRES 232 ¹⁰ Computer Applications in Forestry	3	<input type="checkbox"/>	
Electives ¹¹	3	<input type="checkbox"/>	
Total Credits	12	<input type="checkbox"/>	

Major in Forest Operations

First Year

Required Courses	Credits	Done	Notes
APBI 200 Introduction to Soil Science	3	<input type="checkbox"/>	
FRST/NRES 231 Introduction to Biometrics	3	<input type="checkbox"/>	
FRST/NRES 232 Computer Applications in Forestry	3	<input type="checkbox"/>	
Electives ¹²	3	<input type="checkbox"/>	
Total Credits	12	<input type="checkbox"/>	

Major in Forest Sciences

First Year

Required Courses	Credits	Done	Notes
BIOL 112 Biology of the Cell	3	<input type="checkbox"/>	
BIOL 180 (formerly BIOL 140) Thinking Like a Life Scientist	2	<input type="checkbox"/>	
CHEM 123 Thermodynamics, Kinetics and Organic Chemistry	4	<input type="checkbox"/>	
MATH 101 Integral Calculus with Applications	3	<input type="checkbox"/>	
Total Credits	12	<input type="checkbox"/>	

¹⁰ Students with strong computing skills, especially in the use of spreadsheets, can replace NRES 232 with 3 credits of electives, upon approval by the program director.

¹¹ Students interested in pursuing the Specialization in Community and Aboriginal Forestry with the minor in commerce must take ECON 102 as an elective

¹² Students interested in pursuing the minor in commerce must take ECON 102 as an elective. Students planning to obtain a P.Eng. after graduating require MATH 100, 101 & PHYS 170.

Major in Wood Products

First Year

Required Courses	Credits	Done	Notes
CHEM 123 Thermodynamics, Kinetics and Organic Chemistry	4	<input type="checkbox"/>	
MATH 101 Integral Calculus with Applications	3	<input type="checkbox"/>	
PHYS 117 Dynamics and Waves or PHYS 131 ¹³ Energy and Waves	3	<input type="checkbox"/>	
Electives ¹⁴	3	<input type="checkbox"/>	
Total Credits	13	<input type="checkbox"/>	

How to successfully complete first year:

1. You must follow your program closely – take the appropriate classes outlined for your degree. The most up-to-date program requirements are always listed on the UBC Calendar at www.students.ubc.ca/calendar (click on 'Faculties, Colleges, and Schools' and then on 'Forestry').
2. You must pass at least 60% of the total number of credits attempted in both Terms 1 and 2 (summer classes are not included).
3. You must also obtain an average grade of at least 60% in both Terms 1 and 2, including any failed courses (summer classes are not included). If your average for Terms 1 and 2 is at least 50%, but less than 60%, you will be placed on academic probation and will be sent a letter outlining additional steps you must take in order to remain in your program. If you do not meet the criteria noted above, you will be asked to leave UBC for at least one year. Following this probationary period, you may re-apply to UBC but you must complete at least 12 credits at a college during your time away.

¹³ Students without Physics 12 must replace 3 credits of electives with PHYS 100 prior to taking PHYS 117 or PHYS 131.

¹⁴ Students interested in pursuing the minor in commerce must take ECON 102 as an elective in first or second year.

Major Degree Requirements – Second Year and On

Major in Bioeconomy Sciences & Technology

Second Year

Required Courses	Credits	Done	Notes
BEST 200 Foundations in Bioproducts and the Bioeconomy	3	<input type="checkbox"/>	
BEST 201 Plants, Carbon, and Environment	3	<input type="checkbox"/>	
BEST 202 Alternative Energy Systems	3	<input type="checkbox"/>	
BEST 203 Ecology of Managed Ecosystems	3	<input type="checkbox"/>	
CHEM 233 Organic Chemistry for Biological Sciences	3	<input type="checkbox"/>	
FRST/NRES 231 Introduction to Biometrics	3	<input type="checkbox"/>	
NRES 225 Communications Strategies	3	<input type="checkbox"/>	
Restricted Social Science Elective ¹⁵	3	<input type="checkbox"/>	
Electives	6	<input type="checkbox"/>	
Total Credits	30	<input type="checkbox"/>	

Third Year

Required Courses	Credits	Done	Notes
BEST 300 Biobased Polymers and Bioproducts	3	<input type="checkbox"/>	
BEST 301 Bioenergy	3	<input type="checkbox"/>	
BEST 302 Laboratory in Bioeconomy Technology (I)	3	<input type="checkbox"/>	
BEST 303 Applied Biotechnology for Bioproducts	3	<input type="checkbox"/>	
BEST 304 Laboratory in Bioeconomy Technology (II)	3	<input type="checkbox"/>	
BEST 308 Land Use Management and Planning	3	<input type="checkbox"/>	
FRST 302 Forest Genetics	3	<input type="checkbox"/>	
FRST 318 Forest and Conservation Economics	3	<input type="checkbox"/>	
Restricted Natural Resources Conservation Elective ¹⁶	3	<input type="checkbox"/>	
Electives	3	<input type="checkbox"/>	
Total Credits	30	<input type="checkbox"/>	

¹⁵ One of the following 3-credit courses: GEOG 310, GEOG 318, GEOG 319, POLI 375, or SOCI 342

¹⁶ One of the following 3-credit courses: CONS 200, NRES 241 or NRES 340

Fourth Year

Required Courses	Credits	Done	Notes
BEST 400 Biomimicry and Biocomposites	3	<input type="checkbox"/>	
BEST 401 Carbon and Energy Economics	3	<input type="checkbox"/>	
BEST 402 Industrial Ecology	3	<input type="checkbox"/>	
BEST 403 Integrated Strategies for Bioproduct Innovation	3	<input type="checkbox"/>	
CONS 425 Sustainable Energy	3	<input type="checkbox"/>	
WOOD 365 Wood Industry Business Management	3	<input type="checkbox"/>	
WOOD 461 Globalization and Sustainability	3	<input type="checkbox"/>	
Restricted Commerce Elective ¹⁷	3	<input type="checkbox"/>	
Electives	6	<input type="checkbox"/>	
Total Credits	30	<input type="checkbox"/>	

Major in Conservation

Second Year

Required Courses	Credits	Done	Notes
CONS 200 Foundations of Conservation	3	<input type="checkbox"/>	
CONS 210 Visualizing Climate Change	3	<input type="checkbox"/>	
FRST/NRES 200 Forest Plant Biology I	3	<input type="checkbox"/>	
FRST/NRES 201 Forest Ecology	3	<input type="checkbox"/>	
FRST/NRES 210 Forest Plant Biology II	3	<input type="checkbox"/>	
FRST/NRES 211 Forest Classification and Silvics	3	<input type="checkbox"/>	
FRST/NRES 231 ¹⁸ Introduction to Biometrics	3	<input type="checkbox"/>	
FRST/NRES 232 Computer Applications in Forestry	3	<input type="checkbox"/>	
SOCI 101 Social Interaction and Culture or SOCI 102 Inequality and Social Change	3	<input type="checkbox"/>	
Elective	3	<input type="checkbox"/>	
Total Credits	30	<input type="checkbox"/>	

¹⁷ One of the following 3-credit courses: COMR 329, COMR 457, or COMR 465.

¹⁸ Could be replaced with BIOL 300.

Declaring your Specialization

Students can select a specialization upon completion of second year. Acceptance into a specialization may be limited by demand, in which case acceptance will be based on academic standing at the completion of second year. Students who do not select a specialization can follow an academic program guided by their Program Director.

The **Science and Management Specialization** focuses on the conservation and management of renewable natural resources, and landscape and local level planning for both terrestrial and aquatic ecosystems. A notable feature of this major is the Integrated Field School, a semester-long course divided into modules, each concentrating on a particular component of B.C.'s environment.

The **Global Perspectives Specialization** focuses on the conservation and management of renewable and non-renewable resources, policy formation, and planning within a global context. Two notable features of the major are the international education that students receive through term-long study abroad or through an intensive short-term international field school, and the global issues capstone course which uses case studies and modelling approaches to explore the effects of decision-making on resource sustainability. Acceptance into the Global Perspectives specialization may be limited by demand, in which case acceptance will be based on academic standing at the completion of second year.

Science and Management Specialization

Third Year

Required Courses	Credits	Done	Notes
CONS 330 Conservation Science and Sustainability	3	<input type="checkbox"/>	
CONS 440 Conservation Decision Making and Policy	3	<input type="checkbox"/>	
NRES 241 Introduction to Geomatics for Natural Resource Management	3	<input type="checkbox"/>	
CONS 481 Conservation Planning in Practice	3	<input type="checkbox"/>	
FRST 318 ¹⁹ Forest and Conservation Economics	3	<input type="checkbox"/>	
FRST 385 Watershed Hydrology or GEOS 305 Introduction to Hydrology	3	<input type="checkbox"/>	
FRST 386 Aquatic Ecosystems & Fish in Forested Watersheds	3	<input type="checkbox"/>	
FRST 395 Forest Wildlife Ecology and Management	3	<input type="checkbox"/>	
One of SOCI 360 Sociology and Natural Resources or GEOG 310 Environment and Sustainability Or Elective	3	<input type="checkbox"/>	
Elective (300/400 level)	3	<input type="checkbox"/>	
Total Credits	30	<input type="checkbox"/>	

¹⁹ Could be replaced with ECON 371 or 374 (Note: both require ECON 101/FRST 101 and ECON 102 as a pre-requisite.)

Fourth Year

Required Courses	Credits	Done	Notes
CONS 451 ²⁰ Integrated Field School	15	<input type="checkbox"/>	
NRES 341 Intermediate Geomatics for Natural Resource Management	3	<input type="checkbox"/>	
FRST 495 Biological Diversity & Forest Management	3	<input type="checkbox"/>	
CONS 486 Fish Conservation and Management	3	<input type="checkbox"/>	
One of SOCI 360 Sociology and Natural Resources or GEOG 310 Environment and Sustainability Or Elective ²¹	3	<input type="checkbox"/>	
CONS 498 Thesis or Special Project or Elective (300/400 level) ²²	3	<input type="checkbox"/>	
Total Credits	30	<input type="checkbox"/>	

Global Perspectives Specialization

Third and Fourth Year

Required Courses	Credits	Done	Notes
NRES 241 Introduction to Geomatics for Natural Resource Management (or NRES 340 or GEOS 270)	3	<input type="checkbox"/>	
CONS 330 Conservation Science & Sustainability	3	<input type="checkbox"/>	
NRES 341 Intermediate Geomatics for Natural Resource Management	3	<input type="checkbox"/>	
CONS 452 Global Perspectives Capstone	12	<input type="checkbox"/>	Taken in final year T2
Core Areas²³	15	<input type="checkbox"/>	
Resource Systems ²⁴	9	<input type="checkbox"/>	
Resource Systems Elective	3	<input type="checkbox"/>	
General Electives	6	<input type="checkbox"/>	
300/400 Level Electives	6	<input type="checkbox"/>	
Cultural Experience ²⁵	0	<input type="checkbox"/>	Pre-requisite for CONS 452

²⁰ An integrated course taught in Term 1. Registration is restricted to this course only during Term 1 and only to students in fourth year of the Major in Conservation

²¹ Elective is permitted only if SOCI 360 or GEOG 310 was completed in third year

²² If elective, must be a course numbered 300 or higher

²³ One 3-credit course for each of the following topic areas: (i) resources and economics; (ii) resources and society; (iii) international policy/governance and resources; (iv) indigenous perspectives; and (v) globalization. Acceptable courses are listed below.

²⁴ One 3-credit course in three out of the following four topic areas: (i) oceanography/fisheries/water systems; (ii) aquaculture/food systems; (iii) forestry systems; and (iv) energy/mineral systems. Acceptable courses are listed below.

²⁵ The cultural experience requirement may be met by: a minimum of one term study abroad or one term cultural exchange, a two-to-four-week international field school, an international co-op placement, an international internship, or a cultural-based volunteer experience. It is determined in consultation with Forestry Student Services or the program director.

Core Courses - choose one course from each category (**bolded** courses are recommended but all others are acceptable)

Category	Course Choices
Resources and Economics	BEST 401 , ECON 335, ECON 371, ECON 374, ECON 472, FRE 374, FRST 318 or GEOG 361
Resources and Society	GEOG 310, GEOG 410, HGSE 358 or SOCI 360B
International Policy / Governance and Resources	CONS 440 , FRST 370 or FRST 415
Indigenous Perspectives	ANTH 220, ANTH 304A, CONS 370 , FNIS 210, FNIS 220, HGSE 352 or HGSE 371
Globalization	ECON 255, GEOG 121, GEOG 122, GEOG 211, or WOOD 461

Resource Systems Courses - choose one course in three out of the following four categories (**bolded** courses are recommended but all are acceptable; Resource Systems Elective is selected from this list of courses)

Category	Course Choices
Oceanography / Fisheries / Water Systems	EOSC 314, EOSC 315, EOSC 478, FRST 385 , FRST 386 , GEOS 305 or HGSE 356
Agriculture / Food /Range Systems	APBI 260, APBI 265, APBI 319, APBI 360, APBI 401, APBI 402, APBI 418, FRE 306, FNH 200, FNH 355, FRE 340, or FRST 444
Forestry Systems	FRST 305, FRST 351, FRST 439 , HGSE 353, HGSE 354 or HGSE 355
Energy / Mineral Systems	BEST 202, BEST 301, CONS 425 , or EOSC 311

Note: Some courses in the two sections above may have pre-requisites, which you can take as your general electives.

Major in Forest Management

The major is divided into two specialization options:

1. Community and Aboriginal Forestry, which also offers a minor in Commerce
2. Integrated Resource Management (Students are automatically enrolled in this one)

Specialization in Community and Aboriginal Forestry

Second Year

Required Courses	Credits	Done	Notes
CONS 370 Aboriginal Forestry	3	<input type="checkbox"/>	
FOPR 264 Introduction to Forest Operations	4	<input type="checkbox"/>	
FRST 370 Community Forests and Community Forestry	3	<input type="checkbox"/>	
FRST/NRES 200 Forest Plant Biology I	3	<input type="checkbox"/>	
FRST/NRES 201 Forest Ecology	3	<input type="checkbox"/>	
FRST/NRES 210 Forest Plant Biology II	3	<input type="checkbox"/>	
FRST/NRES 211 Forest Classification and Silvics	3	<input type="checkbox"/>	
FRST 239 Tree and Stand Level Measurements	3	<input type="checkbox"/>	
Specialization-Specific Elective ²⁶	6	<input type="checkbox"/>	
Total Credits	31	<input type="checkbox"/>	
FRST 350 or 351 immediately preceding third year ²⁷	2	<input type="checkbox"/>	

Third Year

Required Courses	Credits	Done	Notes
COMR 457 Fundamentals of Financial Accounting	3	<input type="checkbox"/>	
FRST 305 Silviculture	3	<input type="checkbox"/>	
FRST 307 Biotic Disturbances	3	<input type="checkbox"/>	
FRST 318 Forest and Conservation Economics	3	<input type="checkbox"/>	
FRST 320 Abiotic Disturbances: Fire and Climate	3	<input type="checkbox"/>	
FRST 339 Forest Level Measurement and Productivity	3	<input type="checkbox"/>	

²⁶ Specialization-specific electives are to be chosen from the following: ANTH 201A (3), ANTH 220 (3), NRES 241 (3), CONS 481 (3), FNLG 101B (3), FNPS 210 (3), FRST 339 (3), FRST 386 (3), NRES 341 (3), FRST 439 (3), FRST 470 (3), FRST 490 (3), LAW 200 (3), LAW 395 (3), POLI 316 (3-6), SOCI 201 (3), SOCI 220 (3), SOCI 360 (3).

²⁷ Students will be assigned to the most appropriate course based on their levels of forestry and field experience as determined by the course instructors. Credit will be given for only one of FRST 350 or FRST 351. Course takes place **immediately prior** to third year.

FRST 385 Watershed Hydrology	3	<input type="checkbox"/>
FRST 395 Forest Wildlife Ecology and Management	3	<input type="checkbox"/>
FRST 444 Agroforestry	3	<input type="checkbox"/>
FRST 452 Coastal Field School ²⁸	2	<input type="checkbox"/>
WOOD 365 Wood Industry Business Management	3	<input type="checkbox"/>
Total Credits	32	<input type="checkbox"/>

Fourth Year

Required Courses	Credits	Done	Notes
COMR 329 Principles of Organizational Behaviour	3	<input type="checkbox"/>	
FRST 415 Sustainable Forest Policy	3	<input type="checkbox"/>	
FRST 422 Mathematical Modelling in Forest Resource Analysis	3	<input type="checkbox"/>	
FRST 423 Forest Management Planning	6	<input type="checkbox"/>	
FRST 497 Communications and Professionalism	3	<input type="checkbox"/>	
NRES 241 Introduction to Geomatics for Natural Resource Management	3	<input type="checkbox"/>	
WOOD 461 Globalization and Sustainability	3	<input type="checkbox"/>	
FRST 436 Growth and Yield	3	<input type="checkbox"/>	
Specialization-specific Electives ²⁹	3	<input type="checkbox"/>	
Total Credits	30	<input type="checkbox"/>	

Specialization in Integrated Resources Management

Second Year

Required Courses	Credits	Done	Notes
CONS 200 Foundations of Conservation	3	<input type="checkbox"/>	
FOPR 264 Introduction to Forest Operations	4	<input type="checkbox"/>	
FRST/NRES 200 Forest Plant Biology I	3	<input type="checkbox"/>	
FRST/NRES 201 Forest Ecology	3	<input type="checkbox"/>	
FRST/NRES 210 Forest Plant Biology II	3	<input type="checkbox"/>	
FRST/NRES 211 Forest Classification and Silvics	3	<input type="checkbox"/>	

²⁸ FRST 452 takes place **immediately following** third year

²⁹ Specialization-specific electives are to be chosen from the following: ANTH 201A (3), ANTH 220 (3), NRES 241 (3), CONS 481 (3), FNLG 101B (3), FNSP 210 (3), FRST 339 (3), FRST 386 (3), NRES 341 (3), FRST 439 (3), FRST 470 (3), FRST 490 (3), LAW 200 (3), LAW 395 (3), POLI 316 (3-6), SOCI 201 (3), SOCI 220 (3), SOCI 360 (3).

FRST 239 Tree and Stand Level Measurements	3	<input type="checkbox"/>
Electives	9	<input type="checkbox"/>
Total Credits	31	<input type="checkbox"/>
FRST 350 or 351 immediately preceding third year ³⁰	2	<input type="checkbox"/>

Third Year

Required Courses	Credits	Done	Notes
FRST 305 Silviculture	3	<input type="checkbox"/>	
FRST 307 Biotic Disturbances	3	<input type="checkbox"/>	
FRST 318 Forest and Conservation Economics	3	<input type="checkbox"/>	
FRST 320 Abiotic Disturbances: Fire and Climate	3	<input type="checkbox"/>	
FRST 339 Forest Level Measurement and Productivity	3	<input type="checkbox"/>	
FRST 385 Watershed Hydrology	3	<input type="checkbox"/>	
FRST 386 Aquatic Ecosystems and Fish in Forested Watersheds	3	<input type="checkbox"/>	
FRST 395 Forest Wildlife Ecology and Management	3	<input type="checkbox"/>	
FRST 452 Coastal Field School ³¹	2	<input type="checkbox"/>	
WOOD 365 Wood Industry Business Management	3	<input type="checkbox"/>	
Specialization-specific Elective ³²	3	<input type="checkbox"/>	
Total Credits	32	<input type="checkbox"/>	

Fourth Year

Required Courses	Credits	Done	Notes
FRST 415 Sustainable Forest Policy	3	<input type="checkbox"/>	
FRST 422 Mathematical Modelling in Forest Resource Analysis	3	<input type="checkbox"/>	
FRST 423 Forest Management Planning	6	<input type="checkbox"/>	
FRST 497 Communications and Professionalism	3	<input type="checkbox"/>	
NRES 241 Introduction to Geomatics for Natural Resource Management	3	<input type="checkbox"/>	

³⁰ Credit will be given for only one of FRST 350 or 351. Students will be assigned to the most appropriate course based on their levels of forestry and field experience as determined by the course instructors. Course takes place **immediately prior** to third year

³¹ FRST 452 takes place **immediately following** third year

³² Specialization- -specific electives are to be chosen from: APBI 244/GEOB 204 (3); CONS 310 (3), CONS 370 (3), CONS 412 (3), CONS 415 (3), CONS 481 (3); FOPR 362 (3), FOPR 464 (3); FRST 302 (3), FRST 370 (3), FRST 403 (3), FRST 404 (4), FRST 427 (3), FRST 439 (3), NRES 341 (3), FRST 491 (3); NRES 441 (3); WOOD 492 (3).

WOOD 461 Globalization and Sustainability	3	<input type="checkbox"/>
FRST 436 Growth and Yield	3	<input type="checkbox"/>
Specialization-specific Elective ³³	3	<input type="checkbox"/>
Electives	3	<input type="checkbox"/>
Total Credits	30	<input type="checkbox"/>

Major in Forest Operations Harvest Planning and Engineering (HP&E)

Second Year

Required Courses	Credits	Done	Notes
FRST/NRES 200 Forest Plant Biology I	3	<input type="checkbox"/>	
FRST/NRES 201 Forest Ecology	3	<input type="checkbox"/>	
FRST/NRES 210 Forest Plant Biology II	3	<input type="checkbox"/>	
FRST/NRES 211 Forest Classification and Silvics	3	<input type="checkbox"/>	
FRST 239 Tree and Stand Level Measurements	3	<input type="checkbox"/>	
FOPR 264 Introduction to Forest Operations	4	<input type="checkbox"/>	
FOPR 388 Analytical Methods in Forest Hydrology	3	<input type="checkbox"/>	
CONS 200 Foundations of Conservation or 370 Aboriginal Forestry	3	<input type="checkbox"/>	
Electives	6	<input type="checkbox"/>	
Total Credits	31	<input type="checkbox"/>	
FRST 350 or FRST 351 ³⁴ Field School immediately preceding third year	2	<input type="checkbox"/>	

Third Year

Required Courses	Credits	Done	Notes
FRST 305 Silviculture	3	<input type="checkbox"/>	
FRST 307 Biotic Disturbances	3	<input type="checkbox"/>	
FRST 318 Forest and Conservation Economics	3	<input type="checkbox"/>	

³³ Specialization- -specific electives are to be chosen from: APBI 244/GEOB 204 (3); CONS 310 (3), CONS 370 (3), CONS 412 (3), CONS 415 (3), CONS 481 (3); FOPR 362 (3), FOPR 464 (3); FRST 302 (3), FRST 370 (3), FRST 403 (3), FRST 404 (4), FRST 427 (3), FRST 439 (3), NRES 341 (3), FRST 491 (3); NRES 441 (3); WOOD 492 (3).

³⁴ Credit will be given for only one of FRST 350 or 351. Students will be assigned to the most appropriate course based on their levels of forestry and field experience as determined by the course instructors. Course takes place **immediately prior** to third year

FRST 320 Abiotic Disturbances: Fire and Climate	3	<input type="checkbox"/>
FRST 339 Forest Level Measurement and Productivity	3	<input type="checkbox"/>
FRST 395 Forest Wildlife Ecology and Management	3	<input type="checkbox"/>
FRST 452 ³⁵ Coastal Field School	2	<input type="checkbox"/>
FOPR 362 Harvesting Systems & Forest Access	3	<input type="checkbox"/>
CIVL 210 Soil Mechanics I	4	<input type="checkbox"/>
WOOD 276 Mechanics of Wood Products	3	<input type="checkbox"/>
Restricted Elective ³⁶	3	<input type="checkbox"/>
Total Credits	33	<input type="checkbox"/>

Fourth Year

Required Courses	Credits	Done	Notes
FRST 415 Sustainable Forest Policy	3	<input type="checkbox"/>	
FRST 422 Mathematical Modelling in Forest Resource Analysis	3	<input type="checkbox"/>	
FRST 423 Forest Management Planning	6	<input type="checkbox"/>	
FRST 497 Communications and Professionalism	3	<input type="checkbox"/>	
WOOD 365 Wood Industry Business Management	3	<input type="checkbox"/>	Former WOOD 465
WOOD 492 Modeling for Decision Support	3	<input type="checkbox"/>	
FOPR 464 Operational Planning and Management	4	<input type="checkbox"/>	
NRES 241 ³⁷ Introduction to Geomatics for Natural Resource Management	3	<input type="checkbox"/>	
Restricted Elective	3	<input type="checkbox"/>	
Total Credits	31	<input type="checkbox"/>	

Note: Some elective or specialization courses may carry credits in addition to the above table.

³⁵ FRST 452 takes place **immediately following** third year.

³⁶ Restricted electives are at the discretion of your Program Director. See your Program Director for a current list of accepted courses.

³⁷ NRES 241 may be replaced with another approved GIS or remote sensing course.

HP&E – RPF & P.ENG. Pathway

For students hoping to apply for a P. Eng in addition to their RPF, below is a list of the additional courses that will fulfill those requirements. Please note that in a few cases, these are not the only options for courses that will cover these requirements, but are ones that students have followed in the past. If you have transfer credits that you think might apply or would like to know what other courses are available, contact either the program director or Forestry Student Services.

Please make sure to check the list below to see if the courses have any pre-requisites that you will need to complete first.

Additional courses - HP&E

Required Courses	Credits	Done	Notes
MATH 101 Integral Calculus with Applications	3	<input type="checkbox"/>	Typically taken as a First Year Electives
PHYS 170 Mechanics I	3	<input type="checkbox"/>	Typically taken as a First Year Electives
MATH 221 (MATH 152) Matrix Algebra	3	<input type="checkbox"/>	
MATH 200 (MATH 253) Calculus III	3	<input type="checkbox"/>	
MATH 215 (MATH 255) Elementary Differential Equations I	3	<input type="checkbox"/>	
EOSC 210 Earth Science for Engineers	3	<input type="checkbox"/>	
CIVL 215 ³⁸ Fluid Mechanics I or CHEM 154 Chemistry for Engineers	3	<input type="checkbox"/>	
MATH 316 (MATH 257) Elementary Differential Equations II Or APSC 278 Engineering Materials Or CHEM 123 ³⁹ Thermodynamics, Kinetics and Organic Chemistry Or both WOOD 292 Two-Dimensional and Solid Computer Aided Graphics <u>and</u> DES 110 Measured Architectural Drawing	3/3/5	<input type="checkbox"/>	
WOOD 282 Wood Physics and Mechanics	3	<input type="checkbox"/>	
WOOD 440 Engineering Economics	3	<input type="checkbox"/>	

³⁸ Students need to contact Forestry Student Services to be registered in CIVL 215.

³⁹ CHEM 123 requires CHEM 111 or CHEM 121 as a pre-requisite. CHEM 154 is not a pre-requisite for CHEM 123.

Major in Forest Sciences

Second Year

Required Courses	Credits	Done	Notes
APBI 200 Introduction to Soil Science	3	<input type="checkbox"/>	
APBI 244 (or GEOS 204) Atmospheric Environments	3	<input type="checkbox"/>	
BIOL 200 Fundamentals of Cell Biology	3	<input type="checkbox"/>	
BIOL 201 Introduction to Biochemistry	3	<input type="checkbox"/>	
CHEM 233 Organic Chemistry for the Biological Sciences and CHEM 235 Organic Chemistry Lab	4	<input type="checkbox"/>	
ENGL 110 Approaches to Literature and Culture or ENGL 111 Approaches to Language and Communication or NRES 225 ⁴⁰ Communications Strategies	3	<input type="checkbox"/>	
FRST/NRES 200 Foundations of Conservation	3	<input type="checkbox"/>	
FRST/NRES 201 Forest Ecology	3	<input type="checkbox"/>	
FRST/NRES 210 Forest Plant Biology II	3	<input type="checkbox"/>	
FRST/NRES 211 Forest Classification and Silvics	3	<input type="checkbox"/>	
FRST/NRES 231 (or BIOL 300) Introduction to Biometrics	3	<input type="checkbox"/>	
Total Credits	34	<input type="checkbox"/>	
FRST 350 or FRST 351 ⁴¹ Field School immediately preceding third year	2	<input type="checkbox"/>	

Third and Fourth Years

Required Courses	Credits	Done	Notes
FRST 302 Forest Genetics	3	<input type="checkbox"/>	
FRST 307 Biotic Disturbances	3	<input type="checkbox"/>	
FRST 395 Forest Wildlife Ecology and Management	3	<input type="checkbox"/>	
FRST 399 Introduction to Research Methods	3	<input type="checkbox"/>	
FRST 430 Advanced Biometrics	3	<input type="checkbox"/>	
FRST 495 Biological Diversity and Conservation (or BIOL 416)	3	<input type="checkbox"/>	
Area of concentration ⁴²	9	<input type="checkbox"/>	
General Electives	9	<input type="checkbox"/>	

⁴⁰ NRES 225 does not count toward the dual degree with Education. Students interested in this option should take ENGL 110 or 111.

⁴¹ Credit will be given for only one of FRST 350 or 351. Students will be assigned to the most appropriate course based on their levels of forestry and field experience as determined by the course instructors. Course takes place **immediately prior** to third year

⁴² Students will choose 15 credits from one of the groupings below for their Area of Concentration. Substitutions may be allowed at the discretion of the Director of the Forest Sciences Program.

Forestry Electives ⁴³	18	<input type="checkbox"/>
Total Credits	54	<input type="checkbox"/>

Concentration Courses - choose 9 credits from your concentration

Concentration Category	Course Choices
Plant Genetics/Genomics/Physiology	CONS 302; FRST 311, 413, 432; APBI 318; BIOL 335, 338, 352
Forest Ecology and Management	CONS 310, FRST 305, 310, 320, 385, 408; APBI 401, 402.
Biodiversity Conservation and Management	CONS 314, 330, 481, 486, 495; FRST 386; APBI 416
International Forestry/Sustainability	FRST 411, 415, 439, 444; CONS 330, 425; WOOD 461
Geomatics/Mensuration	NRES 241, 341 (or GEOS 373), 441, FRST/NRES 232, FRST 239, 339, 490; GEOS 370, 479

Honours (with Thesis) Option

The Honours specialization is restricted to students with a minimum 80% overall average in the following core courses: FRST/NRES 200, 201, 210, 211 and 231. Exceptions may be made at the discretion of the Director of the Forest Sciences Program. Application for admission to the Honours specialization should be made to the Director of the Forest Sciences Program. Applications will be accepted in the first weeks of September, January or May of the 3rd academic year. Students in the Honours specialization can also register in the dual degree in Education and Natural Resources (Major in Forest Sciences) following consultation with the Program Director.

Second Year

Required Courses	Credits	Done	Notes
APBI 200 Introduction to Soil Science	3	<input type="checkbox"/>	
APBI 244 (or GEOS 204) Atmospheric Environments	3	<input type="checkbox"/>	
BIOL 200 Fundamentals of Cell Biology	3	<input type="checkbox"/>	
BIOL 201 Introduction to Biochemistry	3	<input type="checkbox"/>	
CHEM 233 Organic Chemistry for the Biological Sciences and CHEM 235 Organic Chemistry Laboratory	4	<input type="checkbox"/>	
ENGL 110 Approaches to Literature and Culture or ENGL 111 Approaches to Language and Communication	3	<input type="checkbox"/>	

⁴³ All 300- and 400-level APBI, CONS, FRST, NRES, UFOR and BEST courses that are not specifically required for the program are eligible as Forestry electives as long as students have the necessary prerequisites

or NRES 225 ⁴⁴ Communications Strategies		
FRST/NRES 200 Foundations of Conservation	3	<input type="checkbox"/>
FRST/NRES 201 Forest Ecology	3	<input type="checkbox"/>
FRST/NRES 210 Forest Plant Biology II	3	<input type="checkbox"/>
FRST/NRES 211 Forest Classification and Silvics	3	<input type="checkbox"/>
FRST/NRES 231 (or BIOL 300) Introduction to Biometrics	3	<input type="checkbox"/>
Total Credits	34	<input type="checkbox"/>
FRST 350 or FRST 351 ⁴⁵ Field School immediately preceding third year	2	<input type="checkbox"/>

Third and Fourth Years

Required Courses	Credits	Done	Notes
FRST 302 Forest Genetics	3	<input type="checkbox"/>	
FRST 307 Biotic Disturbances	3	<input type="checkbox"/>	
FRST 395 Forest Wildlife Ecology and Management	3	<input type="checkbox"/>	
FRST 399 Introduction to Research Methods	3	<input type="checkbox"/>	
FRST 430 Advanced Biometrics	3	<input type="checkbox"/>	
FRST 495 Biological Diversity and Conservation (or BIOL 416)	3	<input type="checkbox"/>	
FRST 498 B.Sc. Thesis in Forestry ⁴⁶	6	<input type="checkbox"/>	
Area of concentration ⁴⁷	12	<input type="checkbox"/>	
General Electives	9	<input type="checkbox"/>	
Forestry Electives ⁴⁸	18	<input type="checkbox"/>	
Total Credits	63	<input type="checkbox"/>	

Major in Wood Products

Second Year

Required Courses	Credits	Done	Notes
WOOD 120 or 220 Introduction to Wood Products and Global Trading	2	<input type="checkbox"/>	
FRST/NRES 231 Introduction to Biometrics	3	<input type="checkbox"/>	

⁴⁴ NRES 225 does not count toward the dual degree with Education. Students interested in this option should take ENGL 110 or 111.

⁴⁵ Credit will be given for only one of FRST 350 or 351. Students will be assigned to the most appropriate course based on their levels of forestry and field experience as determined by the course instructors. Course takes place **immediately prior** to third year

⁴⁶ A 6-credit B.Sc. thesis will be completed in fourth year

⁴⁷ An area of concentration should be selected in consultation with the Forest Science Program Director.

⁴⁸ All 300- and 400-level APBI, CONS, FRST, NRES, and UFOR courses that are not specifically required for the program are eligible as Forestry electives as long as students have the necessary prerequisites.

NRES 225 Communications Strategies	3	<input type="checkbox"/>
WOOD 244 Quantitative Methods in the Wood Industry	3	<input type="checkbox"/>
WOOD 245 Programming for Wood Products Manufacturing Applications	3	<input type="checkbox"/>
WOOD 276 Mechanics of Wood Products	3	<input type="checkbox"/>
WOOD 280 Wood Anatomy and Identification	3	<input type="checkbox"/>
WOOD 282 Wood Physics and Mechanics	3	<input type="checkbox"/>
WOOD 290 Secondary Wood Products Manufacturing	3	<input type="checkbox"/>
WOOD 292 Two-Dimensional and Solid Computer-Aided Graphics	2	<input type="checkbox"/>
Electives ⁴⁹	3	<input type="checkbox"/>
Total Credits	31	<input type="checkbox"/>

Second Year (Summer)

Required Courses	Credits	Done	Notes
WOOD 305 ⁵⁰ Wood Machining Skills	3	<input type="checkbox"/>	
WOOD 353 ⁵¹ Mill Site Visits	2	<input type="checkbox"/>	
Total Credits	5	<input type="checkbox"/>	

Third Year

Required Courses	Credits	Done	Notes
COMM 204 Logistics and Operations Management	3	<input type="checkbox"/>	
WOOD 330 Industrial Engineering	3	<input type="checkbox"/>	
WOOD 335 Quality Improvement	3	<input type="checkbox"/>	
WOOD 356 Machine Components	2	<input type="checkbox"/>	
WOOD 365 Wood Industry Business Management	3	<input type="checkbox"/>	
WOOD 373 Wood Adhesives and Coatings	3	<input type="checkbox"/>	
WOOD 384 Wood Sawmilling and Drying	3	<input type="checkbox"/>	
WOOD 386 Applied Mechanics of Materials	3	<input type="checkbox"/>	
WOOD 464 Wood Finishing and Protection	4	<input type="checkbox"/>	
WOOD 482 CAD/CAM	4	<input type="checkbox"/>	
WOOD 487 Wood Composites	3	<input type="checkbox"/>	
Electives ⁵²	3	<input type="checkbox"/>	
Total Credits	37	<input type="checkbox"/>	

⁴⁹ Students interested in pursuing the minor in commerce must take ECON 102 as an elective in first or second year

⁵⁰ Practical woodworking course taken at the end of second year

⁵¹ Six working days of on-site study of wood products manufacturing plants immediately before or after WOOD 305

⁵² Elective courses are chosen in consultation with the Program Director, and must be numbered 300 or higher

Fourth Year

Required Courses	Credits	Done	Notes
COMR 457 Fundamentals of Financial Accounting	3	<input type="checkbox"/>	
WOOD 440 Engineering Economics	3	<input type="checkbox"/>	
WOOD 461 Globalization and Sustainability	3	<input type="checkbox"/>	
WOOD 485 Furniture Construction	3	<input type="checkbox"/>	
WOOD 491 Environmental Facilities Design	3	<input type="checkbox"/>	
WOOD 492 Modelling for Decision Support	3	<input type="checkbox"/>	
WOOD 494 Principles of Wood Cutting and Tooling	3	<input type="checkbox"/>	
WOOD 499 Wood Products Capstone	6	<input type="checkbox"/>	
Electives ⁵⁰	6	<input type="checkbox"/>	
Total Credit ⁵³	33	<input type="checkbox"/>	

⁵³ Elective courses are chosen in consultation with the Program Director, and must be numbered 300 or higher

Minor in Commerce Options

The Minor in Commerce is an option for the following Majors:

- Bioeconomy Sciences and Technology
- Forest Management (Specialization in Community and Aboriginal Forestry)
- Forest Operations
- Wood Products Processing

To apply, please contact your Program Director or Forestry Student Services. At the time of application, students must be eligible for third-year standing with a cumulative average of at least 68% in the previous two years. Applicants must have successfully completed one of MATH 100, 180, or 110 and both of ECON101/FRST 101 and ECON 102 (or ECON 310 and ECON 311). Meeting the stated requirements does not guarantee admission to the program.

Students may require an additional term to complete the Minor in Commerce, although it is intended to be completed over two years.

The following courses are taken in third and fourth year, in place of electives or specialization-specific electives:

- One of COMM 204, COMR 398 or 458 (required course may differ between Majors)
- COMR 329
- COMR 457
- COMR 465
- COMR 473
- COMR 493

Upon successful completion of this Minor program, the notation "Minor in Commerce" will appear on the student's transcript.

Co-op Option:

The co-operative education (co-op) option within the Bachelor of Science in Natural Resources is a highly competitive program which increases your chances of working in your chosen field. As a co-op student you gain up to 20 months of paid, relevant and invaluable work experience.

Co-op students will extend their degree by one year, completing eight academic terms and five work terms over a five-year period.

Good to know:

- Undergraduate students must apply to co-op in September of their second year
- You should acquire a driver's license if you do not already have one
- Work in British Columbia, across Canada and around the world
- Be supported by our Co-op Coordinators every step of the way

To learn more about the Co-op Program and how you can apply, contact our Co-op Coordinators:

Nazlyn Pirani
Co-op Coordinator
604-827-5196
nazlyn.pirani@ubc.ca
FSC 2615

Alberto Renteria
Co-op Coordinator
604-822-4793
alberto.renteria@ubc.ca
FSC 2609A

Professional Designations

Courses toward Registration as a BC Professional Forester

Students who wish to work towards membership with the Forest Professionals British Columbia (FPBC) are advised to follow the Major in Forest Management or Major in Forest Operations. Students in other Majors should consult with the FPBC on the path to membership. The information is also available on the organization's website at www.fpbc.ca. There are also information sessions held during the academic year in the Faculty of Forestry.

Courses toward Registration as a BC Professional Biologist

Students who wish to work toward registration as a Registered Professional Biologist should follow the Major in Conservation (Specialization in Science and Management) or contact the College of Applied Biology for course and other membership requirements at their website, www.cab-bc.org. There are also information sessions held during the academic year in the Faculty of Forestry.

Contacts:

Forestry Student Services

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