

**College of Natural Resources
Proposed Catalog Changes
Effective Summer 2020**

Forest, Rangeland, and Fire Sciences

1. Add the following courses:

FOR 443 Forest Production Ecology

3 credits

Joint-listed with FOR 543.

Considers how plant production, carbon and energy accumulation are influenced by availability of light, water and nutrient resources. Includes study of use efficiency, allocation, and turnover of captured resources at organ, tree and stand level that are applicable to increased management intensity. Examples emphasize forests but include other wildland and agricultural ecosystems. Stand-level process models are used to synthesize understanding of environmental and management factors controlling forest production. Two 1-hour lectures and one 3-hour lab per week. Requires additional research project and presentation for graduate credit.

Prereq: FOR 221 or REM 221 or WLF 221; SOIL 205, SOIL 206.

Rationale: Faculty offering similar course on Woody Plant Physiology resigned leaving the need for such a class. This course will offer similar tree physiology theoretical knowledge that is applied to applied forest management. Faculty for this course will no longer teach the required FOR 330 so now has capacity to offer the upper division/graduate course.

FOR 543 Forest Production Ecology

3 credits

Joint-listed with FOR 443.

Considers how plant production, carbon and energy accumulation are influenced by availability of light, water and nutrient resources. Includes study of use efficiency, allocation, and turnover of captured resources at organ, tree and stand level that are applicable to increased management intensity. Examples emphasize forests but include other wildland and agricultural ecosystems. Stand-level process models are used to synthesize understanding of environmental and management factors controlling forest production. Two 1-hour lectures and one 3-hour lab per week. Requires additional research project and presentation for graduate credit.

Prereq: FOR 221 or REM 221 or WLF 221; SOIL 205, SOIL 206.

Rationale: Faculty offering similar course on Woody Plant Physiology resigned leaving the need for such a class. This course will offer similar tree physiology theoretical knowledge that is applied to applied forest management. Faculty for this course will no longer teach the required FOR 330 so now has capacity to offer the upper division/graduate course.

2. Change the following courses:

FOR 324 Forest Regeneration**3 credits**

Natural and artificial regeneration of forest ecosystems; reproduction methods; selection of seed source and stock type; nursery cultural practices; tree improvement; site preparation methods to establish regeneration. One lecture and one 2-hr lab a week. Two all day field trips. A semester-long project requires time spent weekly in a nursery to regularly monitor plant development under varied environmental conditions (approximately 45 hours over the 18-week spring semester in addition to lectures, labs and out-of-class studying). Cooperative: open to WSU degree-seeking students.

Prereq: ~~FOR 274, SOIL 205 and SOIL 206~~

Coreq: ~~FOR 330.~~ [FOR 274](#)

Rationale: FOR 324 was switched from a spring semester to a fall semester course. The FOR 330 co-requisite no longer applies to the course since FOR 330 is taught in the following junior spring semester and FOR 324 has been modified to introduce students to the topics covered in FOR 330 that are needed to succeed in FOR 324. The FOR 274 pre-requisite is changed to a co-requisite since FOR 324 and FOR 274 are taught in the same semester. The SOIL 205 and SOIL 206 pre-requisites are dropped from the course as the concepts of soil types, soil chemistry, and soil physical factors necessary for FOR 324 will be taught in FOR 324 in relation to artificial soil medium and soils in the field.

FOR 330 ~~Forest Soil and Canopy Processes~~ [Terrestrial Ecosystem Ecology](#)**4 credits**

[Ecosystem ecology integrates the interactions between organisms and their environment as a complex system, quantifying the biological and physical factors controlling ecosystem processes.](#) ~~Above and below ground biophysical processes that determine how forest ecosystems function.~~ Emphasis is on ~~interactions affecting forest productivity including soil nutrient cycles, light energy, water and nutrient acquisition~~ [terrestrial ecosystems, particularly carbon, water, and nutrient cycling](#). Process-based modeling is used to illustrate effects of complex interactions on carbon budgets. Applications include effects of [disturbance \(fire, pests, climate change, and land management\) on ecosystem productivity, biodiversity, and resilience.](#) ~~environmental stress and disturbance such as forest management, fire, pests and global climate change. Builds from general ecology (FOR 221/REM 221) by exploring processes controlling forest production, and establishes a foundation to address forest management questions in FOR 324 and FOR 424.~~ Two [lectures](#) and one ~~4-hr~~ [lab](#) ~~per~~ a week, including ~~several~~ field trips.

Prereq: ~~SOIL 205; and~~ MATH 143 or MATH 160; ~~and~~ ~~PHYS 100/PHYS 100L~~ or PHYS 111/PHYS 111L; and FOR 221 or REM 221 [or WLF 220 or BIOL 213 or PLSC 102.](#)

Rationale: Title and description are being updated to more accurately reflect current course content and broaden the ecosystems being discussed. Prerequisites are changed to allow majors from biological disciplines across campus to be able to enroll in this course. No additional workload.

FOR 424 Silviculture Principles and Practices**4 credits**

Gen Ed: Senior Experience

Theory underlying silvicultural practices to control forest composition and growth, including forest stand dynamics, tree growth and quality, and growth-density relationships. Study of intermediate stand treatments and reproduction methods. Final project required involving field data collection and forest modeling to develop and mark silvicultural prescriptions. 3-hrs of lecture and 2-hrs of lab per week.

Prereq: Senior standing and FOR 274, FOR 220 or other plant identification course, [FOR 324](#), FOR 330, or instructor permission.

Rationale: The FOR 320 pre-requisite will be changed to FOR 220 since this is the new number for the course starting fall 2019. FOR 324 is added as a pre-requisite as the material covered in FOR 324 has changed in the last two years to provide the underlying theory of applied forest ecology, plant processes, and nursery seedling production necessary for students to succeed in FOR 424. Students in FOR 424 take the concepts they learn in FOR 324 and apply them to make forest management decisions.

Renewable Materials

1. Change the following courses:

RMAT 100 Intro to ~~Renewable Resources~~ [Forest & Sustainable Products](#)

2 credits

~~Overview of renewable building materials and bio-energy industries. Discovery laboratory in the use of renewable and recycled waste stream materials to create useful products.~~ [Examination of the forest and sustainable materials industries and bioenergy products. Discovery laboratory in the use of forest and sustainable materials, including waste streams, to create marketable products.](#) One lecture and one three-hour lab a week. ~~(Spring-only)~~

Rationale: Change makes course title and description consistent with proposed change in degree name from Renewable Materials to Forest and Sustainable Products.
No additional workload.

RMAT 321 Properties of ~~Renewable Materials~~ [Forest and Sustainable Products](#)

3 credits

Physiology, structure and physical and mechanical properties of woody and other ~~renewable plant materials~~ [natural cellulosic fibers](#). ~~(Fall-only)~~

Rationale: Change makes course title and description consistent with proposed change in degree name from Renewable Materials to Forest and Sustainable Products.
No additional workload.

RMAT 444 Primary [Forest](#) Products Manufacturing

3 credits

Raw materials, procurement, production methods, drying product specifications, and grading for primary products made from ~~renewable materials~~ [wood and cellulosic fiber](#) including lumber, plywood, poles, and energy products; plant layout, machines, and systems analysis; plant tours. Two lec and one 5-hr lab a wk. ~~(Spring only)~~

Prereq: RMAT 321.

Rationale: Current title is ambiguous. Change makes course title and description consistent with proposed change in degree name from Renewable Materials to Forest and Sustainable Products.

No additional workload.

RMAT 450 Biomaterials Deterioration and Protection

2 3 credits

~~Agents that cause deterioration of biomaterials; green building durability issues and design considerations; preservative systems and alternative control methods; and environmental considerations.~~ [Biotic and abiotic agents that deteriorate biomaterials; biocidal and nonbiocidal methods used to protect biomaterials from deterioration; biodegradable materials and their applications. Two one-hour lectures and one three-hour lab per week.](#) Recommended preparation: RMAT 321 ~~(Fall only)~~

Rationale: Course is an important component in forest and sustainable products curriculum. Given an increase in the breadth of cellulosic materials being used in various building applications and the increase in number of new products exposed to deterioration agents, students need greater depth of understanding of course concepts. Increased credit will allow for greater student exposure to control methods that mitigate or eliminate biodeterioration than what is currently being taught as a two credit course.

There will be a program workload increase associated with the one additional credit. A new faculty member in the program has added teaching capacity, which easily allows for the one credit increase.

RMAT 498 ~~Renewable Natural Resources~~ [Forest and Sustainable Products](#) Internship

Credit arranged

Supervised field experience with an appropriate [organization](#) ~~public agency or private company.~~

Graded P/F. ~~(Summer only)~~

Prereq: Permission of advisor.

Rationale: Course title change being made to be consistent with proposed change in degree name from Renewable Materials to Forest and Sustainable Products. Course description shortened, but context not changed. Removed requirement that internship has to take place in summer since internship can take place at any time of the year.

No additional workload.

2. Make the following curricular changes:

Renewable Materials (B.S.Renew.Mat.)

The Renewable Materials degree program is designed to fill the growing demand for professionals in the manufacture, marketing, and utilization of sustainable natural materials. Interdisciplinary coursework and project-based learning opportunities lead to a variety of career directions, including procurement of timber and other renewable materials; production management, marketing and distribution of bio-based products; green building materials selection, construction and design; and bio-based energy production systems.

Required course work includes the university requirements (see regulation J-3) and:

ACCT 201	Introduction to Financial Accounting	3
ACCT 202	Introduction to Managerial Accounting	3
ACCT 482	Enterprise Accounting	3
BIOL 102	Biology and Society	3
BIOL 102L	Biology and Society Lab	1
BLAW 265	Legal Environment of Business	3
CHEM 275 or CHEM 277	Carbon Compounds Organic Chemistry I	3
COMM 101	Fundamentals of Oral Communication	2
ECON 202 Or ECON 272	Principles of Microeconomics Foundations of Economic Analysis	3 4
ENGL 313 or ENGL 317	Business Writing Technical Writing	3
FOR 221/REM 221/WLF 220	Principles of Ecology	3
FOR NRS 235	Society and Natural Resources	3
FOR 375	Introduction to Spatial Analysis for Natural Resource Management	3
MATH 160 or MATH 170	Survey of Calculus Calculus I	4
NR 101	Exploring Natural Resources	2
NRS 383	Natural Resource and Ecosystem Service Economics	3
PHYS 111	General Physics I	3
PHYS 111L	General Physics I Lab	1
RMAT 100	Intro to Renewable Resources	2
RMAT 321	Properties of Renewable Materials	3
RMAT 401	Undergraduate Research	1-3
RMAT 436	Biocomposites	3
RMAT 438	Introduction to Lignocellulosic Chemistry	1
RMAT 444	Primary Products Manufacturing	3
RMAT 450	Biomaterials Deterioration and Protection	2 3
RMAT 491	Biomaterial Product and Process Development Lab	2
RMAT/MKTG 495	Product Development and Brand Management	3

RMAT 498	Renewable Natural Resources Internship	1-16
STAT 251	Statistical Methods	3
Select one of the following:		<u>4</u>
CHEM 101 & 101L	Introduction to Chemistry and Introduction to Chemistry Laboratory	
CHEM 111 & 111L	General Chemistry I and General Chemistry I Laboratory	
Second major, academic minor, or area of Emphasis[‡]		18
Total Hours		88-105 <u>69-85</u>

Courses to total 120 credits for this degree

~~[‡] Degree candidates are required to complete a second major, an academic minor or area of emphasis of at least 18 credits. The emphasis area must be approved by the student's academic advisor.~~

Distance Education: 50% or more of curricular requirements *cannot* be completed via distance
Geographical Area: Moscow

Rationale: Requirement of second major, academic minor, or area of emphasis removed to increase student likelihood of completing their degree in four years. Majority of students obtaining degree are either transfer students or students that have changed their major while attending the University of Idaho. Second major, academic minor, or area of emphasis requirement was resulting in several these students having to extend education beyond four years to meet degree requirements. Removal of second major, academic minor, or area of emphasis requirement is expected to have no impact on the employability of students and adds flexibility for students to pursue other academic interests.

Replacing ACCT 201/202 with ACCT 482 is more consistent with the product development/entrepreneurial orientation of degree.

ECON 272 is being added as an alternative to ECON 202 to eliminate substitutions forms being sent to the Registrar for students completing ECON 272.

A separate Change a Course Form is being submitted for RMAT 450 to increase course credits from 2 to 3.

A detailed assessment plan for the curriculum is available on the university's PLO Assessment Plan and Report System. No elements of the assessment plan are affected by the proposed curriculum changes (e.g., the removal of the second major, academic minor, or area of emphasis) and therefore the plan will remain in place.