Oregon State University

Student Advising Guide

2020-2021

Natural Resources Program

College of Forestry

SUMMER – FALL TERM 2020 / NRv2.0

(For students admitted prior to Summer 2018 unless you elected to change your catalog year to NRv3.0))

DISCLAIMER: Content in this guide is continually updated and is a useful planning tool. However, departments may change their course offerings and schedules without notice. For that reason students should check the web catalog frequently for the most current course information.
http://catalog.oregonstate.edu

Please help keep this guide up to date by reporting any broken links or information that has changed to:
terina.mclachlain@oregonstate.edu

Revised 4.2020 for Spring/Summer 2020

NOTE: This Advising Guide reflects the requirements for students who were admitted in the summer of 2011 through spring term 2018. (NR2) Students admitted after spring 2018 or those who would like to move into NR3 curriculum requirements should talk to their advisor.

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Welcome to the Natural Resources Program at OSU

Maintaining the integrity of the Earth's ecosystems is a key challenge of the 21st century. Increasing human population continues to place greater demands on our limited resources. Students in the Natural Resources program at Oregon State University gain an understanding of complex biophysical, social, and cultural systems shaping natural resource management.

The Natural Resources program is an interdisciplinary degree. The degree emphasizes a broad-based approach to the study of natural resources, providing students the opportunity to combine areas of particular interest and focus on topics not otherwise offered at the undergraduate level. With this degree program students will:

- Study an interdisciplinary curriculum based in agricultural sciences, forestry, liberal arts, and science.
- Learn about the social and political components of resource management.
- Begin preparation for a career in ecological restoration, fish and wildlife conservation, forest ecosystem science, natural resource planning, human dimensions, natural resource policy, watershed management, analysis of complex environmental problems, or other natural resources professions.

Recent program graduates are working as natural resource specialists and planners with state and federal agencies, working with non-profit conservation groups, managing lands for private entities, attending law school, training/working as teachers in K-12 education, and pursing graduate degrees in a variety of disciplines.

Curriculum Overview

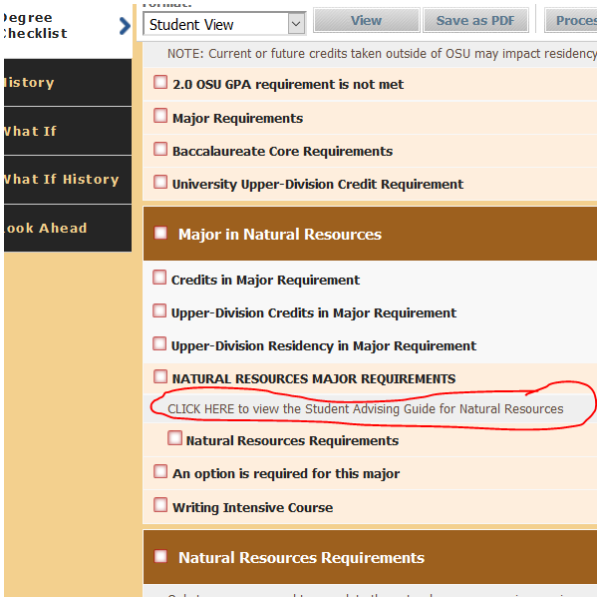
The Bachelor of Science in Natural Resources curriculum consists of four blocks of study.

Baccalaureate Core - A standard set of courses that are required for all Oregon State University students. (This section is waived for Post-Baccalaureate Students and Associate of Arts Oregon Transfer degree students except for two "Synthesis" courses.
Natural Resources Core - Foundational courses that will give you a solid background in sciences, math, and policy. Minimum GPA for this block is 2.0.
Natural Resources Breadth - Upper division (300-400) courses that will broaden your knowledge of the field of Natural Resources. Minimum GPA for this block is 2.0.
Natural Resources Specialization Option - Focused areas of study that will tailor your degree to your career interests and goals. Minimum GPA for this block is 2.25.

How to Use This Advising Guide

The Student Advising Guide is a road map to the completion of your degree. It lists all the requirements that you need to earn the degree and information to help you make choices along the way. As a digital document it is searchable and has many helpful links to get you to other resources. Clicking on the blue

underlined course numbers will take you to the OSU Schedule of Classes where you will find the CRN number, course capacity, instructor's name, and other important information about each course. The guide is updated frequently and you can find the latest version on the Natural Resources Program Website and through a link in your MyDegrees audit.



The purpose of the advising guide is to help you plan your academic program. Your MyDegrees audit has a "Planner" tab that will allow you to input your courses for future terms. This helps us predict the need for courses in future terms as well as help your advisor check to see if you are on the right track. Video tutorials on how to use the MyDegrees Planner are on the registrar's website along with many other helpful tutorials. The year in which you are admitted to the Natural Resources major will determine your "catalog year" and the requirements in effect in that year are applicable to your academic program. However, all course choices available to you are listed in the advising guide so check here often to see any new additions to the course lists.

https://registrar.oregonstate.edu/video-tutorials

MyDegrees

Oregon State University uses an online degree audit system to help you track your progress toward your degree. Take some time to familiarize yourself with the tools and information provided by this system. The MyDegrees system will automatically apply baccalaureate courses and courses that fit in the Natural Resources Option. Courses in the NR Core and Breadth may need to be manually applied by the Advisor as you complete each term. It's helpful if you can let your advisor know which requirement you would like the class applied to as some courses can fit in multiple areas. If you ever see something missing or in a place you didn't expect contact your advisor directly for assistance.

Video tutorials on using MyDegrees, registering for classes, adding and dropping classes and other helpful topics are available on the OSU Registrar's website.

Requirements for Graduation

In addition to the University and degree program requirements, students in the **Natural Resources program** must also meet specific requirements to graduate. You should familiarize yourself with the OSU Academic Regulations.

Minimum GPA met for each block in the major – 2.0 for the NR Core and Breadth, 2.25 for the option. A cumulative OSU GPA of 2.0 is required for graduation.

S/U Grading - The Natural Resources Program allows up to two total S/U graded courses in the Core, Breadth, or Option. *Please see advisor for details.*

Double Counting - Courses may be double counted between the Baccalaureate Core and the Natural Resource Core, Breadth, or Option. Courses may NOT be double counted within the Natural Resource Major. Courses are also allowed to be double counted in a minor.

The Numbers to Watch -

180 – The minimum number of quarter credits necessary to graduate from OSU.
60 - Minimum upper division (300-400 level) credits required to graduate from OSU.
124 - The maximum number of credits that can be transferred from a community college.
45 - of your last 75 credits must be earned at OSU OR you must have at least 150 credits from OSU.

Natural Resource Undergraduate Program Learning Outcomes

Students who graduate with a Natural Resources degree from OSU should be able to integrate technical "field" knowledge with analytical skills to solve important natural resource management problems. They should be able to communicate effectively, work collaboratively, assess their professional strengths and weaknesses, and be committed to continuous learning and professional development.

Specifically, they should be able to:

Describe ecological processes, including human impacts that influence ecosystem change, natural succession and the future sustainability of natural resources.	**Coursework that Meets Outcome**: General Ecology (NR Core) Earth Science (NR Core) Atmospheric Science (NR Core) Water Science (NR Core) Soil Science (NR Core) Chemistry (NR Core) GIS Category of NR Core NR Breadth Course Selections NR Option Courses
Characterize natural resources and be able to quantify at least one of these resources.	**Coursework that Meets Outcome**: Earth Science (NR Core) Water Science (NR Core) Vegetation ID (NR Core) Animal ID (NR Core) Soil Science (NR Core) Measurements (NR Core) Students may select option courses that meet this outcome

Envision desired future conditions in an area to achieve a set of natural resource-related objectives, prescribe management actions needed to achieve those objectives, and evaluate success of these actions.	**Coursework that Meets Outcome**: Environmental Assessment and Planning (NR Core) NR Breadth Course Selections NR Option Courses
Describe how the use, management, and allocation of natural resources are affected by: laws, policies, economic factors (both market and non-market), and characteristics (including demographic, cultural, ethnic, and "values" differences) of private and public resource owners and users.	**Coursework that Meets Outcome:** Natural Resource Policy (NR Core) Resource Economics Category (NR Core) Natural Resource Decision Making (NR Core) Environmental Assessment and Planning (NR Core) Political Dimensions (NR Breadth)
Communicate effectively, orally and in writing, with audiences of diverse backgrounds.	**Coursework that Meets Outcome:** Baccalaureate Courses in: -Writing I and II -Speech -Writing Intensive Course -Cultural Diversity -Difference, Power, and Discrimination Natural Resource Decision Making (Capstone) Communications (NR Core)
Work effectively with, and within, interdisciplinary and diverse groups to resolve management problems and achieve management objectives.	**Coursework that Meets Outcome:** Cultural Diversity (Baccalaureate Core) Difference, Power, and Discrimination (Baccalaureate Core) Natural Resource Decision Making (Capstone) Environmental Assessment and Planning (NR Core) Communications (NR Core)

Academic Advising

Advising Rights and Responsibilities

The College of Forestry is committed to helping students succeed. Each student is assigned an advisor within their academic department to assist with appropriate course selection, explain program options in line with student interests, and provide information about mentoring and other professional opportunities. In addition, advising personnel in the College Student Services office are a valuable resource for information and assistance regarding University rules and regulations, petitions, job placement, national and international exchange programs, and referrals to University programs and resources.

The advising effort is one of mutual respect and collaboration between you and your advisor. If the process is to be effective both you and your advisor must meet certain obligations. With that in mind, here are some key responsibilities for your relationship.

As an advisee, you should:

- Understand and accept that you are ultimately responsible for your education and your own decisions.
- You will need a new registration PIN# each term except summer:

  On Campus students must make an appointment with their advisor each term to receive their PIN#. Students should come prepared to their appointments with a written plan for courses they plan to register for and what requirements they intend to fulfill. Students should use the scheduler tool to plan a weekly class schedule and have some alternative classes selected in case they are unable to register for their first choices.

  Ecampus students should contact their Advisor (via email or a phone/WebEx appointment) prior to the term registration period. They should provide a written plan for courses that they plan to register for and what requirement they intend to fulfill. Include at least two alternative courses in case you are unable to register for your first choices. The Advisor will approve the course plan and provide the term registration PIN#.

- **Be prepared when you come to advising sessions**. Be active in your advising session and ask questions when you have them.
- Provide accurate and truthful information when being advised.
- Initiate a purposeful relationship with your advisor and make appointments when necessary or when in need of assistance. Appointments are available by phone and web conferencing and in the advising office. Advisors may vary in the type of advising appointments they offer.
- Keep your local address and phone up-to-date in Student Online Services profile and regularly checking your ONID account.
- Use only your ONID email (@oregonstate.edu) account to correspond with your advisor and include your student ID# in correspondence.
- Cancel appointments through the online appointment system when you are unable to make them.
- Learn and understand OSU's policies, procedures, and requirements as they relate to your academic success and/or degree completion.

- Follow through on plans-of-action identified during advising sessions.

Advisors should:

- Develop a purposeful relationship with and be an advocate for their advisees.
- Inform students of the nature of the advisor/advisee relationship.
- Assist students in defining and developing education, career and life plans.
- Provide timely and accurate educational information.
- Promote learning opportunities that will help students define or meet personal goals.
- Assist students in preparing a program that is consistent with their abilities and interests.
- Monitor progress toward educational/career goals.
- Interpret and provide rationale for institutional policies, procedures and requirements**.**
- Inform students of campus resources that can enhance or supplement their academic or personal experience.

Familiarize yourself with this Student Advising Guide as it will be your primary resource for planning your academic program. A link to this Advising Guide is available in MyDegrees in the "Major" block , on the Natural Resources Program website and on the College of Forestry website under Advising›Programs and Advising Guides. You'll use this tool frequently so bookmark the page or print out and keep a copy in a binder along with a copy of the syllabus for each class you take. This Advising Guide is updated frequently so print a new copy at least once a year. The year in which you are admitted to the Natural Resources major will determine your "catalog year" and the requirements in effect in that year are applicable to your academic program. However, newly added course choices will be available to all students regardless of year admitted.

Make an Appointment with your Advisor

One of the key actions for academic success is having regular appointments with your Academic Advisor. Each student admitted to the Natural Resources Program will be assigned one of the advisors below. You can find your assigned advisors name in the first block on your MyDegrees page.

You can schedule an appointment through our online appointment scheduling system which uses your ONID username, password and student ID#. You will receive email reminders about your appointment. If you can't attend your scheduled appointment please log back into the system to cancel the appointment so another student can use that time. If you have any problems with scheduling an appointment please contact your Advisor through email.

Advising Staff:

NOTE: We are moving back to Peavy Hall! The new Peavy Hall will be called the Peavy Forest Science Complex (PFSC). The Student Services office, International Programs and our individual advising offices will be housed in Room 116 on the first floor of the new building.

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Beth.Thompson@oregonstate.edu

To schedule an appointment with an Advisor go to this webpage and click on the appointment calendar for your assigned advisor.:
http://undergrad.forestry.oregonstate.edu/advising/academic-advisors

Experiential Learning: Projects, Internships and Study Abroad

The Natural Resources program offers several ways for you to use experiential learning in your academic program. While not required, these credit-bearing opportunities provide valuable hands on experience that can prepare you to work in your field and build your resume before you graduate. You can use up to 6 credits of related experiential learning in your area of specialization or other major requirement if petitioned and approved in advance. You should declare your specialization option before submitting a proposal for a project, internship or study abroad credits that is related to your specialization. You will need to register for credits in the same term that you are actively working on the project, internship or study broad. For example, summer internships will require you to register for summer term. Experiential learning may encompass more than one term but you would need to register for credits for each term in which you are actively engaged. You should submit your proposal for your experiential learning credits at least TWO TERMS prior to the beginning of the term in which it occurs.

NR 406 Project

A project is appropriate for those students who are interested in gaining skills in a very specific academic area or conducting undergraduate research. You may design your own project, work on a project with an agency, non-profit or community organization or assist a faculty member with their research. A faculty mentor will supervise your project and provide a grade for the project at the end of the term. Finding the faculty mentor is the responsibility of the student but your academic advisor can point you toward resources to help with your search. (Note: You may also have a site supervisor depending on the nature of the project.) Projects can be graded on a Pass/No Pass or A-F grading basis. You will submit a proposal that includes a description of your project, the learning objectives, the final product that documents your learning (e.g. paper, website, site plan, display, poster, etc.) You will pay the typical tuition fee per credit as you would for any other credit-bearing class. If you are conducting undergraduate research you can apply to have that noted on your OSU transcript.

NR 410 Internship

An internship is similar to a project, but may have a broader focus and include more general skills. Both internships and projects require defined learning objectives and a final academic project (e.g. research paper, blog, site plan, website, poster, display, project, etc.) An internship might be a seasonal job, field work or part-time work over an extended period of time. It is different from a project because a Site Supervisor is *required* as well as an OSU Internship Supervisor. The Site Supervisor will provide expertise in the field and an assessment of your work upon completion of the internship. The OSU Internship Supervisor will monitor your progress and assign the grade. Internships can be graded on a Pass/No Pass or A-F grading basis. You will submit a professionally written proposal that includes a description of your project, the learning objectives, and the final product that documents your learning. The research paper (or other product or deliverable) will be graded by the OSU Internship Supervisor. You can find many internships and seasonal work positions posted on the College of Forestry Employment Opportunities webpage.

Study Abroad

The College of Forestry International Programs organizes three types of opportunities abroad: Faculty-Led Programs, Exchange & Study Abroad and Internships & Research. These credit-bearing opportunities are eligible for university and college scholarships. *Faculty-led programs* are led by College of Forestry Faculty. These programs study a specific theme or focus, are eligible for academic credit and are usually shorter than the length of a term. Often they are conducted during breaks such as summer or spring break. These are ideal for working students or Ecampus students who would like a short term hands on intensive experience. *Exchange programs* are typically a semester or academic year and integrates into a host university's academic and student community. *Study abroad programs* vary in duration and focus and can include intensive language or field studies for single and multiple terms abroad. *International internships* allow students to pursue professional level work experience overseas while receiving academic credit. Most international internships are a minimum of ten weeks in duration and can take place any time of the year. The College of Forestry and partner programs offer internships all over the world!

In addition OSU Global Opportunities has a wide range of programs and scholarship offering. IE3 Global provides international internships in 50 different countries.

Contact your Academic Advisor to discuss which experiential learning opportunity would best fit your academic plan! Templates for the petition forms for NR 406 and NR 410 can be found on the NR Program website.

**One credit is equal to 30 hours of academic related work*

Natural Resources Accelerated Master's Platform: Student FAQ

You can get a jumpstart on your Master of Natural Resources (MNR) while finishing your undergraduate degree in Natural Resources! The Accelerated Master's Platform (AMP) allows undergraduate OSU Natural Resources students to take graduate level courses that will be applied to their B.S. degree and transfer those courses to the Master of Natural Resources program at OSU. Students apply to the AMP program after completing at least 105 credits in their undergraduate degree program and then, if accepted, matriculate into the master's program immediately after graduation. Up to 12 graduate credits can be transferred and with careful planning full-time students could complete a master's degree within 1 year of finishing their bachelor's degree. Financial aid is applicable to the graduate level courses that are taken for the undergraduate degree.

The Master of Natural Resources degree is currently offered through Ecampus. The Natural Resources B.S. degree is offered on the Corvallis Campus, OSU-Cascades and Ecampus.

What is the Accelerated Master's Platform(AMP)?

The Accelerated Master's Platform is designed to allow undergraduate students in the Natural Resources B.S. program to take graduate level courses that can be applied to the Master of Natural Resources degree. Students can take up to 12 credits of graduate level coursework that will transfer to the master's program at OSU and also be applied to their Natural Resources B.S. degree. Currently the MNR degree program is offered through OSU Ecampus although some specific courses may also be available on the Corvallis and/or Cascades campus.

Who is eligible for the AMP program?

All Natural Resources undergraduate students can apply if they meet the admission criteria. Unfortunately the AMP program is not open to Post Baccalaureate students.

What are the admission criteria?

Applicants must have a cumulative GPA of at least 3.25 or above and have completed 105 credits in their undergraduate program. Applicants should also complete the WIC course for the Natural Resources B.S. before applying to the Accelerated Masters Platform.

How do I apply?

The first step is to meet with the AMP Program Coordinator for the undergraduate Natural Resources program (Terina McLachlain). The program coordinator will help you prepare your application materials which include: 3 letters of reference, a completion plan that includes the graduate level courses that will be taken, and a statement of graduate research or project objectives. One of the letters must be from the applicant's potential graduate faculty advisor. It will be the applicant's responsibility to find the graduate faculty advisor who will agree to mentor the

student through both the AMP and the MNR academic programs. The deadline to submit the application is 3 terms prior to anticipated graduation from the undergraduate degree. No GRE is required for AMP students and the graduate school admission fee is waived.

How do I find a graduate faculty advisor?
A list of possible faculty advisors will be provided but any OSU faculty member could potentially serve as a graduate faculty advisor if they are willing to do so. Students will reach out personally or through email to request a faculty member as an advisor. Applicants should find an advisor who has an area of research and expertise that is relevant to the student's proposed research or project.

What requirements do I need to meet to stay in the AMP program?
- All graduate level coursework to be applied to the MNR must be 3.0 or better.
- Students must maintain a cumulative 3.0 GPA in their undergraduate program to remain in the program.

Are there required classes in the Accelerated Master's Program?
AMP students will be required to take MNR 560 Master's Case Study in place of NR 455 NR Decision Making (4 credits) as the capstone course for the Natural Resources undergraduate program. Additionally they will be required to take FES 585 Consensus and Natural Resources (3 credits) which will replace FES 485 in the Interdisciplinary Foundations block of the undergraduate program. Other suggested courses are FES 545 Ecological Restoration (3 credits) and FES 586 Public Lands Policy and Management (3 credits). Many other graduate level courses can be applied to the undergraduate major requirements.

In preparation for courses in the MNR program AMP students should take the 2XX series of biology or an equivalent transferable biology series for science majors. In most cases they should have also completed BI 370 General Ecology or an equivalent as well. Careful planning will insure that any prerequisite courses for graduate level courses will be taken as an undergraduate.

Will I be automatically admitted to the MNR degree program when my bachelor's degree is finished?
After completion of the Natural Resources B.S. degree program all AMP participants will be reviewed and admitted on a case by case basis. Application is competitive and not all applicants who meet the application criteria will be admitted.

Who should I contact if I am interested in the AMP program?
AMP Program Coordinator
Terina McLachlain, NR Program Manager/Academic Advisor
541-207-3580
terina.mclachlain@oregonstate.edu
http://nr.forestry.oregonstate.edu/accelerated-masters-platform

Baccalaureate Core

The Baccalaureate Core is an OSU requirement for all majors. Post-Baccalaureate and Associate of Arts Oregon Transfer degree students need only complete the Synthesis and Writing Intensive Course requirements. Students must complete course work in four areas: Skills, Synthesis, Perspectives and a Writing Intensive Course.

Your First 45 hours of OSU generated credits:

To support students' success in all courses, the following first-year Skills courses are to be taken and completed satisfactorily within the first 45 hours of OSU-generated credits:

- *Writing I (WR 121)*
- *Mathematics*
- *Speech*

To prepare for the upper-division Writing Intensive Course in the major, the following Skills course is to be taken and completed satisfactorily within the first 90 hours of OSU-generated credits:

- *Writing II*

For transfer students with sophomore standing or above, *Writing II and Speech* must be completed within the first 45 hours of OSU-generated credits. These requirements apply to all students, whether full time or part time.

It is highly recommended that you complete your Natural Resources requirements for math*, statistics, chemistry, and biology within your first year.

**Some students with little math background or who took math long ago need to start with remedial courses such as MTH 65 and/or MTH95. You might also try some free online tutorials to get your math skills up to speed. There are many sites available but one of the best is the Kahn Academy (www.kahnacademy.org.) Contact your advisor for an up to date list of tutorials and refresher courses.*

Do I need to take the ALEKS Math Placement Test?

- All first-year students must take the ALEKS Math Placement Test.
- All transfer and post-baccalaureate students newly admitted to OSU must take the ALEKS Math Placement Test, unless you have earned a C- or better in a college-level course from another college or university; or via a CLEP exam, AP exam, or IB exam.
- If it has been more than a year since your last math class, taking the ALEKS Math Placement Test is strongly recommended--the Learning Module, an individualized tutorial, will provide a good refresher for your next course.

ALEKS Math Placement Test: http://www.math.oregonstate.edu/mlc-placement-home

If a course has been approved for the Baccalaureate Core an asterisk (*) will appear by the course number. A complete list of courses (both Ecampus and On Campus) fulfilling the Bacc Core requirements is found at:

http://catalog.oregonstate.edu/BCCSOCList.aSPx?category=Skills%20Courses&check=True

SCORE	COURSE PLACEMENT
75% - 100%	*MTH 251: Differential Calculus
60% - 74%	*MTH 112: Elementary Functions *MTH 241: Calculus for the Management and Social Science *MTH 245: Mathematics for Management, Life and Social Science
46% - 59%	*MTH 105: Introduction to Contemporary Mathematics *MTH 111: College Algebra
30% - 45%	MTH 095: Intermediate Algebra MTH 103: Algebraic Reasoning
15% - 29%	MTH065: Elementary Algebra
0% - 14%	If your score was below 15%, you did not place into any OSU Mathematics Course. You can use the ALEKS Learning Modules to improve your score or consider enrolling in a community college to take the appropriate prerequisite courses.

Baccalaureate Core Requirements

Course in **BOLD** are offered through Ecampus. A complete list of Baccalaureate Core Classes can be found at: http://catalog.oregonstate.edu/bcc.aspx.

Transfer Credit Tool

Oregon Community College Baccalaureate Core Equivalencies

Double Counting Courses Chart (check here to see where Bacc Core classes and double count with your NR major requirements)

SKILL COURSES		
Writing 1	3	**WR 121**
Writing 2	3	**WR 201, WR 214, WR 222, WR 224, WR 241, WR 323, WR 324, WR 327, WR 330**
Speech	3	COMM 111, COMM 114, **COMM 211**, COMM 218
Lifetime Fitness and Health	2	**HHS 231**
Lifetime Fitness and Health Lab	1	**HHS 241** or any PAC (Physical Activity Course)
Mathematics	4	**MTH 111 or higher**
PERSPECTIVES		
Physical Science w/lab	4	*Can be fulfilled by Earth Science requirement in the NR Core*
Biological Science w/lab	4	*Can be fulfilled by Biology requirement in the NR Core*
Phys or Bio Science w/lab	4	*Can be fulfilled by Biology requirement in the NR Core*
One class in each of the following five areas. No more than two from the same department. Suggested courses are shown because they double count in the NR Core, Breadth or Option but many courses are available. See the link above for the course catalog.		
Western Culture	3	*See the OSU Catalog for course selections.* SUGGESTED: **AEC 253** (Double counts in Human Dimensions, Recreation Resource Management and NR Policy & Management Option), **PHL 201** (double counts in the NR Policy and Management Option
Cultural Diversity	3	*See the OSU Catalog for course selections.*
Literature & Arts	3	*See the OSU Catalog for course selections.*
Social Processes & Institutions	3	*See the OSU Catalog for course selections.* SUGGESTED: **ECON 201, AEC 250** are prerequisites for AEC351 and AEC/ECON352 (Resource Economics Requirement). **GEOG 240** and **ANTH 101** can also count in Society and NR in the NR Core.
Difference, Power and Discrimination	3	*See the OSU Catalog for course selections.* SUGGESTED: **FW 340, AG 301**, or **GEO 309** (these will double count in NR Breadth>Res Values & Phil.) **SOC 360** (double counts in NR Breadth>Social Issues).
SYNTHESIS Must be from different departments		
Contemporary Global Issues	3	*See the OSU Catalog for course selections.* SUGGESTED: **AEC 351, AEC/ECON352, ANTH 482, BI 301, FES 365, FES 477, FW 325, GEOG 300, GEO 308, PHL 440, PHL 443, SOC4 54, SOC 480, SUS 350**
Science, Technology & Society	3	*See the OSU Catalog for course selections.* SUGGESTED: **ANTH 330, ANTH 481, ENSC 479, ENT 300/HORT 330, GEOG 340, SOIL 395, FES 485, FES 477, FW 350, FW 360, GEOG 300, GEO 306, GEO 307, HST 481, NR 351, PS 475, PS 476, SOC 456, SOC 481, SOC 485, SUS 304, WGSS 440**
WRITING INTENSIVE COURSE (WIC)^	3-4	**ENSC 479, FES 486, FW 435, FW 454, FOR 460, GEOG 323, HORT 318, PS 449**

NATURAL RESOURCES CORE (76 credits minimum) Minimum GPA 2.0

Additional on-campus or transfer courses may fulfill requirements as well; please consult your advisor.

*=Baccalaureate Core / ^ =WIC (Writing Intensive Course

COR= CORVALLIS CAMPUS, CAS= CASCADES CAMPUS, DSC = ECAMPUS, EOU = EASTERN OREGON UNIVERSITY

F= FALL TERM, W = WINTER TERM, SP = SPRING TERM, SU = SUMMER TERM

ANIMAL ID (CHOOSE ONE)

COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
FES 412	Forest Entomology	3	SP				BI 204 or BI 211 or BI 212 or with C or higher and/or equivalent.	
FW 312	Systematics of Birds	2	F	SU, F, W,SP			One yr. intro biology	
FW 316	Systematics of Fishes	3	F	SU,W			BI211/212/213 OR BI204/ 205/ 206, Recommend FW315 as co-requisite.	No freshman. CORV has two weekend field trips.
FW 318	Systematics of Mammals	2	W	SU, W, SP	W		One yr. intro biology	No freshman.
Z 365	Biology of Insects	4					BI 211 and BI 212 and BI213 or BI 204 and BI205 and BI 206 with C- or better	Offered in alternate years.
Z 473	Herpetology	3		F			BI 211 and BI 212 and BI 213 or BI 204 and BI 205 and BI 206. All with C- or better.	
Z 477	Aquatic Entomology	4	W		F		BI 211/212/213 or BI 204/ 205/206 with C- or better, Lab is a Co-requisite	Two required Saturday field trips. Exact dates depend on weather.

ATMOSPHERIC SCIENCE (CHOOSE ONE)

COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
ATS 201*	Climate Science	4	F, W,SP	SU,F,SP	SP			
FW 345*	Global Change Biology	3	SP				Introductory biology and ecology courses recommended such as BI370 or consent of the instructor	Prerequisite not enforced but is highly recommended!
GEOG 323^	Climatology	4	F	W, SP			ATS 201 or OC 201 or GEO 202 or GEO 221 or GEOG 102	
SUS 103*	Intro to Climate Change	4	F,W,	SU,F,	SP			

BIOLOGY (12 CREDITS MINIMUM) COMPLETION OF FULL 200 LEVEL SERIES IS PREFERRED								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
BI 101* and	General Biology	4	SU, F	F	F			
BI 102* and	General Biology	4	SU, W	W	W			
BI 103*	General Biology	4	SU,SP		SP			
OR								
BI 204* and	Introduction to Biology	4		F, W				Restricted to Ecampus only
BI 205* and	Introduction to Biology	4		W,SP			CH 121 or higher D-	Restricted to Ecampus only
BI 206*	Introduction to Biology	4		F,SP			CH 121 or higher D-	Restricted to Ecampus only
OR								
BI 211* and	Principles of Biology	4	SU, F		SU, F			This biology series will be dropped and replaced with a new series in Fall 2020. It will be offered for the last time in a condensed format in the summer of 2020.
BI 212* and	Principles of Biology	4	SU, W		SU,W		CH 121 or higher D-	This biology series will be dropped and replaced with a new series in Fall 2020. It will be offered for the last time in a condensed format in the summer of 2020.
BI 213*	Principles of Biology	4	SU,SP		SP,SU		CH 121 or higher D-	This biology series will be dropped and replaced with a new series in Fall 2020. It will be offered for the last time in a condensed format in the summer of 2020.

CHEMISTRY (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
CH 121	General Chemistry	5	F, W	SU, F, W, SP	F		Working knowledge of HS Algebra, logarithms and scientific notations	
CH 231*	General Chemistry	4	SU, F, W(hybrid)	SU, F	F		Co-requisite of CH 261, MTH 111 or MTH 112 or MTH 251 or MTH 252 or MTH 254 with C- or better (or Placement Test MPAL (060)	Separate lab is not required for Ecampus students.
And CH 261*	Required Lab for CH 231	1	SU, F, W		F		Co-requisite for CH 231	

COMMUNICATION (CHOOSE ONE OF THE FOLLOWNG 300-400 LEVEL COURSES)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
COMM 321	Introduction to Communication Theory	3	F, W, SP		F			Maj/Min rest to COMM majors/no freshman only for W term in CORV.
COMM 322	Small Group Problem Solving	3					Recommend COMM 218.	Not currently scheduled.
COMM 324	Communication in Organizations	3	F,SP		F			
COMM 326	Intercultural Communication	3	W		F			
COMM 328	Non Verbal Communication	3	W, SP	F, W,SP, SU	SU		Maj/Min rest to COMM only for Spring term in CORV, No Freshman	
COMM 385	Communication and Culture in Cyberspace	3		SU,F,W,SP	SU			
COMM 440	Theories of Conflict and Conflict Management	3	F		W		COMM 321	Students who have taken FES 485 can request an override from the instructor.
COMM 442	Bargaining and Negotiation Processes	3	W				COMM 321	Students with taken FES 485 can request an override from the instructor.
FES 430	Forest as Classroom	4		F,SP				
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
NR 312	Critical Thinking for NR Challenges	3	W					
TRAL 493	Environmental Interpretation	4	SP	SU, F, W,SP				CORV: Junior/Senior Standing only
WR 362*	Science Writing	3	F,SP	SU,F			WR 121 (C- or higher)	This course will double count as a Writing II course in the Bacc Core.
WR 462^	Environmental Writing	4	W				WR 121 (C- or higher)	No Freshman. This course will double count as a Writing Intensive course (WIC).
WR 466	Professional Writing	4	W				WR 121	

EARTH SCIENCE (CHOOSE ONE)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
GEO 101*	The Solid Earth	4	SU, F	SU, W, SP				
GEO 201*	Physical Geology	4	F, W					
GEO 202*	Earth Systems Science	4	W					
GEO 221*	Environmental Geology	4	SP	F, W				
GEOG 102*	Physical Geography	4	W	SU,F, SP				

ENVIRONMENTAL ASSESSMENT AND PLANNING (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
FW 435^	Wildlife in Agricultural Ecosystems	3	W	F, W, SP			Recommend BI 370 and FW 251.	CORV = No Freshman or Sophomore
GEOG 450	Land Use in the American West	3						Not currently scheduled.
PS 477	International Environmental Politics and Policy	4	W	SU, F, W,SP				
RNG 421	Wildland Restoration and Ecology	4	F	F		SP	Coursework in soils and ecology.	
RNG 490	Rangeland Management and Planning	4	SP	W		W		
SUS 304*	Sustainability Assessment	4	F	W,SP	W			
SUS 350*	Sustainable Communities	4	F, W, SP	SU, F, W,SP	F			
TRAL 456	Planning for Sustainable Recreation	4	W				FES/TRAL 251 with minimum grade of C- .	Lecture and Lab.
TRAL 457	Planning for Sustainable Tourism	4	SP				FES/TRAL 251 with minimum grade of C- .	Lecture and lab.
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	

GENERAL ECOLOGY (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
BI 351	Marine Ecology	3	W	F			BI 211, BI 212, BI 213 or BI204, BI 205, BI 206 (all with C- minimum)	
BI 370	General Ecology	3	F, W, SP	SU, F, W, SP	W		BI 211,212,213 (C- minimum) or BI 204, 205, 206 (C-minimum)	Required for some specialization options and a prerequisite for many courses.
BOT 341	Plant Ecology	4	SP	F,SP			BOT 321 and BI 213 recommended.	
FES 240*	Forest Biology	4	F, SP	SU, F, SP				
FES 341	Forest Ecology	3	F	F, SP	F		DSC sections require one year biology completed.	

GEOGRAPHIC INFORMATION SCIENCE (CHOOSE ONE)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
CROP/HORT 414	Precision Agriculture	4	SP (hybrid)	W				
FE 257	GIS and Forest Engineering Applications	3	W	F				
FW 303	Survey of Geographic Information Systems	3		SU,F, W,SP				NOT a lab/skills class.
GEOG 201*	Foundations of Geospatial Science and GIS	4	F,W	SU,F,SP				
GEOG 360	Geoscience I: Geographic Information Systems and Theory	4	F,SP	F, W	W			

MANAGING NATURAL RESOURCES FOR THE FUTURE								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
NR 201	Managing NR for the Future	3	W	SU,F,W	F			

MATHEMATICS (CHOOSE ONE)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
MTH 112*	Elementary Functions	4	SU, F, W, SP	SU, F, W, SP	W		MTH 111 C- or better or ALEKS placement test score of 60%.	MTH 112 is a required prerequisite in the Landscape Analysis specialization.
MTH 241*	Calculus for Management, Life and Social Science	4	SU, F, W, SP	SU, F, W, SP	SP		MTH 111 C- or better or ALEKS placement test score of 60%.	
MTH 245*	Mathematics for Management, Life and Social Science	4	SU, SP	SU, F, W, SP	SP		MTH 111 C- or better or ALEKS placement test score of 60%.	
MTH 251*	Differential Calculus	4	SU, F, W, SP	SU, F, W, SP	F		MTH 112 C- or better or ALEKS placement test score of 75%.	

MEASUREMENTS (CHOOSE ONE FROM EITHER BIOLOGICAL/PHYSICAL COURSES OR SOCIAL SCIENCE COURSES)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Biological/Physical Science Courses:								
BI 371^	Ecological Methods	4	SP		SP		BI 370	CORV Restricted to Biology Majors In Phase I.
BOT 440	Field Methods in Plant Ecology	4		SU,SP			Recommend an ecology course and statistics.	
FE 208	Forest Surveying	4	F	SP			MTH 112 or 241 or 251 or 252 with C or better.	
FOR 321	Forest Mensuration	5	F				(FOR 141/FES 141 or FOR/FES 241) and (FE 208 and FE 209) and (MTH 241 or MTH 245 or MTH 251) and (ST201 or ST351) with C minimum in all.	Restricted to COF majors
FW 255	Field Sampling of Fish and Wildlife	3	SU, F, W, SP	SU, F, W,SP	SP		DSC: WR 121 and familiarity with personal computers recommended.	

GEOG 452	Sustainable Site Planning	3	SP	W			GEOG 205 Recommended.	
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	
RNG 441	Rangeland Analysis	4	F	SU		SP	Recommend ST 351.	CORV: Lecture and lab.
OR Social Science Course:								
FES 422	Research Methods in Social Science	4	W	F	SP		ST 201 or ST 351	

NATURAL RESOURCE DECISION MAKING (Capstone course – take in your last year)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
NR 455	Natural Resource Decision Making	4	W,SP	SU,F,SP	W		FES 485 and a WIC class (See list of WIC classes on page 14 of this guide)	Senior Standing. May/min rest to COF Major only for CORV sections. Should be taken in the last year of your academic program. NO SUBSTITUTIONS.

NATURAL RESOURCE POLICY (CHOOSE ONE)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
AEC 454	Rural Development Economics and Policy	3						Not currently scheduled.
FES 486^	Public Lands Policy and Management	3	F	SP			Sophomore standing recommended.	
FOR 460^	Forest Policy	4	W					Senior standing, Restricted to COF majors. Lecture and lab.
FOR 462	Natural Resource Policy and Law	3	W					Junior/Senior standing.
GEOG 340*	Introduction to Water Science and Policy	3	F	SU, F, W, SP	F			
PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
PS 477	International Environmental Politics and Policy	4	W	SU, F, W,SP				

RESOURCE ECONOMICS (CHOOSE ONE)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
AEC 351*	Natural Resources Economics & Policy	3	F	F, SP			AEC 250 or AREC 250 or ECON 201	Students with the Wildland Fire Ecology Option should take AEC 351 or AEC 352 as it is a prerequisite for a required class in that option.
AEC/ECON 352*	Environmental Economics and Policy	3	F, SP	SU, F, SP	W		AEC 250 or ECON 201	Students with the Wildland Fire Ecology Option should take AEC 351 or AEC 352 as it is a prerequisite for required classes in that option.
AEC 454	Rural Development Economics and Policy	3						Not currently scheduled.

FOR 330	Forest Resource Economics I	4	SP				(AEC 250 or ECON 201) AND (MTH241 or MTH245 or MTH251 or MTH252) with minimum grade of C.	Restricted to COF majors only. FOR 229 will replace FOR 330.
TRAL 432 (was FES 432)	Economics of Recreation and Tourism	~~3~~	SP					

SOCIETY AND NATURAL RESOURCES (CHOOSE ONE)

COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
ANTH 101*	Introduction to Anthropology	3	F, W, SP	SU, F, W, SP				
FES 355	Management for Multiple Resource Values	3		F, SP				
GEOG 240*	Climate Change, Water and Society	3	F					
TRAL 251	Recreation Resource Management	4	F	W				
TRAL 354	Communities, Natural Areas and Tourism	3	W					

SOIL SCIENCE (CHOOSE ONE)

COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
CSS 205*	Soil Science	4		SU, F, W, SP				Lab is included in the online soil science course. No separate lab to register for.
CSS 305	Principles of Soil Science	4				F	Introductory Chemistry and CSS 306 taken concurrently with CSS 305. EOU campus only.	
SOIL 205*	Soil Science	3	F, W, SP		F		Co-requisite SOIL 206 or FOR 206	Must take the lab as well in order for it to be a physical science Bacc Core course.
and FOR 206	Forest Soils Lab for SOIL 205	1	SP				Co-requisite SOIL 205	
OR SOIL 206*	Soil Science Lab for SOIL 205	1	F, W, SP		F		Co-requisite SOIL 205	

STATISTICS (CHOOSE ONE)

COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
ST 201	Principles of Statistics	4	SU, F, W, SP	SU, F, W, SP	W		High School Algebra.	DSC has Proctored Exam.
ST 351	Intro to Statistical Methods	4	SU, F, W, SP	SU, F, W,SP	SU,F		High School Algebra with Statistics.	DSC has Proctored Exam.

Students may also take MTH243 at an Oregon Community College through the Degree Partnership Program. http://partnerships.oregonstate.edu/

VEGETATION ID (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
BOT 321	Plant Systematics	4	SP				Recommend BI 213.	
BOT 414	Agrostology	4						Not currently scheduled.
BOT 425	Flora of the Pacific Northwest	3	SP				Recommend BOT 321 or equivalent.	
FES 241	Dendrology	3	F, SP	F				
HORT 226	Landscape Plant Materials I: Deciduous & Coniferous	4	F	F				
HORT 228	Landscape Plant Materials II: Shrubs	4	SP	SP				
RNG 353	Wildland Plant Identification	4	F	SU, SP	F	SP		

WATER SCIENCE (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
FE 430	Watershed Processes	4	F	W				Junior/Senior Standing.
FW 326	Integrated Watershed Management	3		F,W, SP			FW 251 recommended	
OC 201*	Oceanography	4	F, W	F,SP				
OC 332	Coastal Oceanography	3	SU, W					SU= Required four hour field trip. W= No Freshman
RNG 355	Desert Watershed Management	4	F	F,W				

Note: Particular option programs may specify additional core courses to assure that students meet prerequisites for option courses or develop the background in career fields applicable to the option. Students should not assume that the core courses listed above include all of the necessary background in science or math for every option.

NATURAL RESOURCES BREADTH (21 credits minimum) Minimum GPA 2.0

Additional on-campus or transfer courses may fulfill requirements as well; please consult your advisor.

*=Baccalaureate Core / ^ =WIC (Writing Intensive Course

COR= CORVALLIS CAMPUS, CAS= CASCADES CAMPUS, DSC = ECAMPUS, EOU = EASTERN OREGON UNIVERSITY

F= FALL TERM, W = WINTER TERM, SP = SPRING TERM, SU = SUMMER TERM

FISHERIES AND WILDLIFE (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FES/FW 452	Biodiversity Conservation in Managed Forests	3	SP	F			Recommend FES 240 or FES 341 or BI 370.	No freshman or sophomore.
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
FW 311	Ornithology	3	SP	SU, F, W,SP	SP			CORV: No freshman
FW 315	Ichthyology	3	F	SU, F, W,SP				No Freshman.
FW 317	Mammalogy	3	W	SU, F, W,SP				CORV = Junior/Senior Standing
FW 320	Introductory Population Dynamics	4	W	SU, F, W, SP			BI 370 or BI 371 (may be taken concurrently). Recommend introductory statistics and math equivalent to MTH 245 or higher.	
FW 321	Applied Community and Ecosystem Ecology	3	SP	F, W, SP			FW 320. (May be taken concurrently)	CORV = No Freshman or Sophomore
FW 323	Management Principles of Pacific Salmon in Northwest	3		SU, F, W, SP	W			
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
FW 426	Coastal Ecology and Resource Management	5	F (HMSC)	F (Hybrid)				Departmental Approval required. No Freshman and Sophomore. HMSC = Hatfield Marine Science Center
FW 427	Principles of Wildlife Diseases	4		SU,SP				Junior standing or instructor approval
FW 435^	Wildlife in Agricultural Ecosystems	3	W	F, W, SP			Recommend BI 370 and FW 251.	CORV = No Freshman or Sophomore
FW 451	Avian Conservation and Management	3		F, W			Recommend FW 311.	
FW 454^	Fishery Biology	4	F	W			FW 315 and FW 320	
FW 458	Mammal Conservation and Management	4	SP	F,SP			Recommend 9 credits of Upper Div Biological Sciences	
FW 465	Marine Fisheries	4					FW 315 or equivalent	Offered Fall term in alternate years, Broadcast from HMSC to NASH. Not currently scheduled.

FW 473	Fish Ecology	4	W	SP			BI 370 and FW 315	
FW 481	Wildlife Ecology	4	F	SU,SP	W		BI 370 or BI 371	No Freshman or Sophomore
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	

FORESTRY (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
FE 370	Harvesting Operations	4	F				PH 201 or PH 211 with C or better.	Junior Standing.
FE/FOR 456*	International Forestry	3	SP				Introductory biology recommended.	No Freshman or Sophomore
FES 341	Forest Ecology	3	F	F, SP	F		DSC sections require one year biology completed.	
FES 342	Forest Types of the Northwest	3		W	F			
FES/HORT 350	Urban Forestry	3		F, W			Foundational Horticulture or Forestry courses recommended.	
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FES/FW 452	Biodiversity Conservation in Managed Forests	3	SP	F			Recommend FES 240 or FES 341 or BI 370.	No freshman or sophomore.
FES/HORT/NR 477*	Agroforestry	3	W				Recommend Introductory Biology.	
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
BOT/FOR 413	Forest Pathology	3	F				BI 204 or BI 212 or BI 213 and/ or equivalent with C or better	
FOR 436	Wildland Fire Science and Management	4	F	F,W				
FOR 441	Silviculture Principles	4	SP				(FES 240 or FOR 240) AND (FES 141 or FES 241) with C minimum in all.	
FOR 460^	Forest Policy	4	W					Senior standing, Restricted to COF majors. Lecture and lab.
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	

LAND AND WATER (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
FE 430	Watershed Processes	4	F	W				Junior/Senior Standing.
FW 456	Freshwater Ecology and Conservation	5	SP	SP,W			BI 370 or BI 371	(formerly called Limnology)

FW 479	Wetlands and Riparian Ecology	3	SP	SU, F, W, SP			Recommend BI 370 or BI 371.	
GEO 306*	Minerals, Energy, Water and the Environment	3	SP	SU, F, W				
GEO 307*	National Park Geology and Preservation	3	F	SU, SP				
GEO 308*	Global Change and Earth Sciences	3	SU,F,W	SU, W,SP				
GEOG 340*	Introduction to Water Science and Policy	3	F	SU, F, W, SP	F			
GEOG 440	Water Resources Management in the U.S.	3	W	SP			Recommend 9 credits of upper division geography and any course dealing with hydrologic cells.	
GEOG 441	The World's Water	3	SP	SP			Recommend 9 credits of upper division geography and any course dealing with hydrologic cells.	Formerly called "International Water Resource Management"
HORT 318^	Applied Ecology of Managed Ecosystems	3	W	F, SP				CORV restricted to CSS and HORT majors in Phase I
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	
RNG 355	Desert Watershed Management	4	F	F,W				
RNG 455	Riparian Ecohydrology and Management	4	SP	SU			Recommend RNG 355	
SOIL 366	Ecosystems of Wildland Soils	3		W	SP		SOIL 205 or CSS 205 or CS 305	
SOIL 395*	World Soil Resources	3		SU,F,W,SP			CH 121, 122, 123, 201, 202, 231, 231H, 232, 232H, 233 or 233H.	
SOIL 466	Soil Morphology and Classification	4	SP	F,SP		SP	SOIL 205 or CSS 205 or CSS 305	

POLITICAL DIMENSIONS (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
AEC 432	Environmental Law	4	SP	SP				
BI 301*	Human Impacts on Ecosystems	3	W					No freshman.
ENT 300 / HORT330*	Plagues, Pests and Politics	3	SP	SU,F				
FES 365*	Issues in Natural Resource Conservation	3	W~	SU,W	SP			W~= International Sites
~~FES 454~~	~~Managing at the Wildland Urban Interface~~	~~3~~	~~F~~	~~W~~	-	-		NO LONGER OFFERED
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
FOR 462	Natural Resource Policy and Law	3	W					Junior/Senior standing.
FW 325*	Global Crises in Resource Ecology	3		SU,F, W,SP				
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites

GEOG 300*	Sustainability for the Common Good	3	SU, F, W,SP	SU,F, W,SP				Junior/Senior standfing.
GEOG 340*	Introduction to Water Science and Policy	3	F	SU, F, W, SP	F			
GEOG 450	Land Use in the American West	3						Not currently scheduled.
HST 481*	Environmental History of the United States	4	W	SU, F, W,SP			HST 201, 202, 203 recommended	Junior/Senior Standing
NR 351*	When Science Escapes the Lab	3	SP					
PS 455*	The Politics of Climate Change	4	SP	F, W				
PS 473	U.S. Energy Policy	4	SP	W				
PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
PS 476*	Science and Politics	4	SP	SU,W				
PS 477	International Environmental Politics and Policy	4	W	SU, F, W,SP				
TRAL 351	Outdoor Recreation on Public Lands	4	W				FES/TRAL 251	No Freshman/Sophomore
TRAL 352	Wilderness Management	3		SU, F,W,SP				

RANGE (CHOOSE ONE)								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FES/HORT/NR 477*	Agroforestry	3	W				Recommend Introductory Biology.	
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
FOR 436	Wildland Fire Science and Management	4	F	F,W				
RNG 341	Rangeland Ecology and Management	3	F, W,,SP	SU,F,W,SP	W	F		
RNG 351	Range Ecology I - Grasslands	3	F	SP		F		
RNG 352	Range Ecology II – Shrub lands	3	W	SP				
RNG 421	Wildland Restoration and Ecology	4	F	F		SP	Coursework in soils and ecology.	
RNG 441	Rangeland Analysis	4	F	SU		SP	Recommend ST 351.	CORV: Lecture and lab.
RNG 442	Rangeland-Animal Relations	4	SP	SP				
RNG 490	Rangeland Management and Planning	4	SP	W		W		

RESOURCE VALUES AND PHILOSOPHY (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
AG 301*	Ecosystems Science of the PNW Indians	3	F, W	SU,F,W, SP				
ANTH 352*	Anthropology, Health and Environment	3		F,W, SP	SP			
ANTH 477	Ecological Anthropology	3		F			Recommend 3 credits social science and Junior/Senior standing	
ANTH 481*	Natural Resources and Community Values	3		SU			Recommend 3 credits of social science.	
ANTH 482*	Anthropology of International Development	4						Not currently scheduled.
FW 340*	Multicultural Perspectives in Natural Resources	3	SP	SU, F, W, SP				
GEO 309*	Environmental Justice	3	W	SP	SP		WR 121. Minimum C- grade.	
GEOG 430	Resilience-Based Natural Resource Management	3						Not currently scheduled.
HST 481*	Environmental History of the United States	4	W	SU, F, W,SP			HST 201, 202, 203 recommended	Junior/Senior Standing
NR 312	Critical Thinking for NR Challenges	3	W					
PHL 439*	Philosophy of Nature	3						Not currently scheduled.
PHL/REL 443*	World Views and Environmental Values	3	F, W, SP	SU, F, W, SP			One introductory-level science	Sophomore standing

SOCIAL ISSUES (CHOOSE ONE)								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
ANTH 330	Evolution of People, Technolgoy and Society	3	SU,W	SU,F,W,SP				
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
PS 473	U.S. Energy Policy	4	SP	W				
SOC 360	Population Trends and Policy	4	F	F,W				
SOC 381	Social Dimensions of Sustainability	4		F, SP			SOC 204	
SOC 424	Social Psychology	4	W				SOC 204	No Freshman/Sophomore. Not currently scheduled.
SOC 454	Leisure and Culture	4		SU, F, W,SP			SOC 204	
SOC 456*	Science and Technology in Social Context	4	W				SOC 204	Junior/Senior standing. Not currently scheduled.
SOC 475	Rural Sociology	4	SP				SOC 204	
SOC 480*	Environmental Sociology	4	F	SU	SU		SOC 204	

SOC 481*	Society and Natural Resources	4	W,SP	SU, F, W, SP			SOC 204	CORV = No freshman or sophomore
TRAL 351	Outdoor Recreation on Public Lands	4	W				FES/TRAL 251	No Freshman/Sophomore
TRAL 352	Wilderness Management	3		SU, F,W,SP				
TRAL 353	Nature, Eco and Adventure Tourism	3	F		F			
TRAL 354	Communities, Natural Areas and Tourism	3	W					
TRAL 493	Environmental Interpretation	4	SP	SU, F, W,SP				CORV: Junior/Senior Standing only
WGSS 440*	Women and Natural Resources	3	SP	F, W,				

Specialization Options: Choosing an Area of Concentration

Incorporated in a student's course of study is a specialization option. It is in this area of concentration that the student develops depth and a particular focus within the broader field of natural resources. A 40+ credit specialization option is required for the B.S. in Natural Resources and is different from a minor or a second degree that a student may choose to pursue although some courses may be able to double count.

Some students come into the program already knowing which area of concentration they want to pursue, others take a few terms for exploring and finding out where their interests lie. However, you will need to officially declare the specialization (sometimes referred to as an 'option") in order for its checklist to appear in MyDegrees. You should declare your specialization no later than 6 terms before you plan to graduate. Talk to your Academic Advisor about your goals and for assistance with declaring the specialization.

Frequently Asked Questions

How do I know when I will graduate?

Take the number of requirements in the Baccalaureate Core, NR Core, NR Breadth and NR Specialization (typically 10-11 courses) that need to be completed and divide by how many courses you plan to take each term. This should give you the approximate number of terms it will take to complete the degree. You must fulfill the requirements of the degree as well as meet the 180 minimum credits needed to graduate.

How do I declare my Specialization Option?

Your advisor will assist you in completing the Change of Academic Program form which is submitted to the Head Advisor for approval. Once approved by the College the form is sent to the OSU Registrar's Office so that the specialization can be officially added to your academic program and the specialization block will appear in MyDegrees. The specialization option choices can be found in this Advising Guide and in the OSU Catalog.

How do I create an Individualized (student designed) Specialization?

The Individualized Specialty Option (ISO) is a student designed area of concentration that allows a student to tailor his or her academic program to specific goals or interests. The requirements are the same as the other options; minimum of 40 credits, a minimum of 20 credits must be upper division and no more than 24 credits with the same departmental course designator (FOR, FES, NR, etc..). This option is often a good choice for transfer students who have great Natural Resources related coursework from other institutions that does not fit into the NR Core or Breadth.

The student must submit an ISO Petition that includes a program of study listing the courses that are going to be used in the area of concentration. Part 2 of the petition is a brief essay that describes the goals and employment opportunities provided through the program of study. The student

will work closely with an advisor to choose courses and to develop a professional proposal that is then submitted to the Program Director for approval. Students should **complete** this approval process no less than 6 terms before graduation. Allow at least one term for revisions!

AREAS OF SPECIALIZATION

A specialization "option" is a ***required*** part of the Natural Resources major that allows the student to develop depth and focus in a particular area of natural resource management. All specialization options are required to have a minimum of 40 credits with at least 20 upper division credits. Course availability may vary by campus so student should make a plan with their advisor.

Area of Specialization	Campus Availability	Description
Ecological Restoration	*Corvallis, Ecampus*	This option will help students understand complexities associated with restoration of terrestrial and aquatic ecosystems, and how restoration decisions involve significant interactions between ecological and social systems.
Fish and Wildlife Conservation	*Corvallis, Ecampus, OSU-Cascades,*	This option prepares students for a career in the broad arena of natural resource and wildlife conservation. It emphasizes understanding the relationship between animal species and their habitat requirements and the ability to apply this knowledge to the management ecosystems as a means of conserving fish and wildlife.
Forest Ecosystems	*Corvallis*	This option will assist students in understanding the nature of forest ecosystems and the processes by which they function. Course work includes an understanding of the multiple resources and values associated with forest ecosystems and some of the techniques involved in managing them. Students in this area of specialization may be interested in becoming a certified Forester through the Society of American Foresters. Natural Resource students can earn certification through Option #2 by meeting credit hour requirements for certification.
Human Dimensions	*Corvallis, Ecampus*	The student will develop an understanding of the interconnectedness of human behavior and well-being and natural resources. It includes skills and knowledge to better understand the cultural, social, political and philosophical issues associated with natural resources, and prepares

		students to work with various stakeholders in natural resource management.
Integrated Conservation Analysis	*Corvallis*	Students pursuing this option will learn to recognize, understand, analyze and evaluate complex natural resource problems through a cross disciplinary approach. They will contribute to finding solutions to these critical issues by developing depth of knowledge in a disciplinary focus and by preparing to work on cross disciplinary teams. Students will learn to communicate their findings effectively to diverse groups and apply conflict resolution, leadership, and collaboration skills effectively. Students will prepare a brief petition that describes the area of disciplinary depth in which they will focus. They will choose a political, social or ecological focus related to their career goals. This petition is approved by the Natural Resources Program Director. Students should talk to their academic advisor about submitting this petition.
Landscape Analysis	*Corvallis, Ecampus*	This option prepares students to work with Geographic Information Science technology in a natural resource fields such as wildfire ecology, land use planning, forestry, ecological restoration, and more. The pairing of the technical skills of GIScience with a disciplinary knowledge in a natural resource area will prepare students for the practical application of technical skills in the real world. In addition, this specialization option will allow students to earn the GIScience Undergraduate Certificate through the College of Earth, Ocean, and Atmospheric Sciences concurrently with their BS degree through the College of Forestry. The student will apply to the GIS Certificate Program as well as the Natural Resources Program. Students should contact Kuuipo Walsh, GIScience Certificate Program Director, to enroll in the GIScience Certificate Program. (kuuipo.walsh@oregonstate.edu)

		No S/U grades are accepted for the courses that are counted for the GIS Certificate. Students will prepare a brief petition that describes the Natural Resources Electives that they wish to complete in this area of specialization. This is approved by the Natural Resources Program Director. Students should talk to their academic advisor about submitting this petition.
Natural Resource Education	*Corvallis, Ecampus*	This option will prepare students for careers as natural resource educators. Students in this option will prepare to be teachers in informal environmental education settings. If you are interested in teaching in a K-12 classroom the NR3 version of this option allows double counting with the OSU Education Double Degree program that leads to licensure and certification in biology or integrated science. Students on the Corvallis campus may wish to explore the Education Double Degree program offered by the College of Education which allows students to earn a BA or BS in Education as well as their BS in Natural Resources. Courses in this option may be double counted with the Education Double Degree where applicable. Students in the Double Degree Program would seek Content Mastery for certification in biology or integrated science in order to teach in middle school or high school.
Natural Resource Policy and Management	*Corvallis, Ecampus*	This option will prepare students for careers in the broad arena of natural resource management and environmental conservation, with an emphasis on the social and political aspects of resource issues.
Urban Forest Landscapes	*Corvallis, Ecampus*	This option will help students understand the complexities surrounding the culture and management of urban forest ecosystems. It includes an examination of the economic, social, and environmental benefits and values of trees in urban areas, and the relationship between people and trees.

Wildland Fire Ecology	*Corvallis,(NR 3 version is available through Ecampus)*	This option will help students understand the nature of fire in wildland ecosystems. It includes an understanding of the dynamics of fire behavior and post-fire response
Individualized Specialty Option	*All campuses*	The Individualized Specialty Option is a student designed option that allows a student to tailor the academic program to specific goals or interests related to natural resource management. In consultation with their Academic Advisor, students will develop a written proposal for a program of study that meets their goals as well as academic requirements. Students should contact their assigned Academic Advisor for information on developing an Individualized Specialty Option.

Effective Summer 2018 the specialization options below have been removed from the NR Curriculum. Students currently in these options can find the course plan in Appendix A of this advising guide.

Arid Land Ecology
Law Enforcement and Natural Resources (replaced by Conservation Law Enforcement in new curriculum Summer 2018)
Recreation and Tourism Management
Sustainable Agroforestry
Watershed Management

ECOLOGICAL RESTORATION								
Course number	**Course name**	**Credit**	**COR**	**DSC**	**CAS**	**EOU**	**Prerequisites**	**Restrictions**
Required Courses (29-30 Credits)								
BI 311	Genetics	4	F, W, SP,SU	F, W, SP	F		BI 211 and BI 212 and BI 213 or BI 204 and BI 205 and BI 206, C- or better in all	Replaces BI345 Intro to Evolution
or PBG 430	Plant Genetics	3	W				One yr. Bio and Chemistry	
BOT 321	Plant Systematics	4	SP				Recommend BI 213.	
OR BOT 341	Plant Ecology	4	SP	F,SP			BOT 321 and BI 213 recommended.	
CH 122*	General Chemistry	5	W, SP	SU, F, W,SP	W		CH 121 with C- or better	
OR CH 232*	General Chemistry	4	SU, W, SP	SU,W	W		CH 231 and labs with C- or better	Separate lab is not required for Ecampus students.
AND CH 262*	Laboratory for CH232	1	SU, W, SP		W		Co-requisite for CH232	
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FOR 436	Wildland Fire Science and Management	4	F	F,W				
OR FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FW 479	Wetlands and Riparian Ecology	3	SP	SU, F, W, SP			Recommend BI 370 or BI 371.	
OR RNG 455	Riparian Ecohydrology and Management	4	SP	SU			Recommend RNG 355	
GEOG 450	Land Use in the American West	3						Not currently scheduled.
SOIL 366	Ecosystems of Wildland Soils	3		W	SP		SOIL 205 or CSS 205 or CS 305	
OR SOIL 388	Soil Systems and Plant Growth	4		F			(SOIL 205 and SOIL /FOR 206 or CSS 205) and (CH 121 or CH 231) and (BOT 220 or (BI 204 or BI 205 or BI 206 or BI 211 or BI112 or BI213)	

OR SOIL 466	Soil Morphology and Classification	4	SP	F,SP		SP	SOIL 205 or CSS 205 or CSS 305	
Social and Ethical Considerations (Choose one course from the following)								
FOR 431	Economics and Policy of Forest Wildland Fire	4	SP				AEC 351 or AEC/ECON 352 or FOR 330 with C or better	Course replaces FES 454 in Wildland Fire Ecology Option.
NR 312	Critical Thinking for NR Challenges	3	W					
PHL 439*	Philosophy of Nature	3						Not currently scheduled.
PHL/REL 443*	World Views and Environmental Values	3	F, W, SP	SU, F, W, SP			One introductory-level science	Sophomore standing
SOC 480*	Environmental Sociology	4	F	SU	SU		SOC 204	
SOC 481*	Society and Natural Resources	4	W,SP	SU, F, W, SP			SOC 204	CORV = No freshman or sophomore
Ecological and Natural Resource Electives (Choose a minimum of 9 Credits)								
BI 351	Marine Ecology	3	W	F			BI 211, BI 212, BI 213 or BI204, BI 205, BI 206 (all with C- minimum)	
BOT 488	Environmental Physiology of Plants	3	W				Recommend one course in plant physiology or ecology	
FES 412	Forest Entomology	3	SP				BI 204 or BI 211 or BI 212 or with C or higher and/or equivalent.	
FES/FW 452	Biodiversity Conservation in Managed Forests	3	SP	F			Recommend FES 240 or FES 341 or BI 370.	No freshman or sophomore.
FOR/BOT 413	Forest Pathology	3	W				BI 204 or BI212 or BI 213 or equivalent.	
FOR 441	Silviculture Principles	4	SP				(FES 240 or FOR 240) AND (FES 141 or FES 241) with C minimum in all.	
FW 320	Introductory Population Dynamics	4	W	SU, F, W, SP			BI 370 or BI 371 (may be taken concurrently). Recommend introductory statistics and math equivalent to MTH 245 or higher.	
FW 321	Applied Community and Ecosystem Ecology	3	SP	F, W, SP			FW 320. (May be taken concurrently)	CORV = No Freshman or Sophomore

FW 426	Coastal Ecology and Resource Management	5	F (HMSC)	F (Hybrid)				Departmental Approval required. No Freshman and Sophomore. HMSC = Hatfield Marine Science Center
FW 451	Avian Conservation and Management	3		F, W			Recommend FW 311.	
FW 454^	Fishery Biology	4	F	W			FW 315 and FW 320	
FW 456	Freshwater Ecology and Conservation	5	SP	SP,W			BI 370 or BI 371	(formerly called Limnology)
FW 458	Mammal Conservation and Management	4	SP	F,SP			Recommend 9 credits of Upper Div Biological Sciences	
FW 473	Fish Ecology	4	W	SP			BI 370 and FW 315	
FW 481	Wildlife Ecology	4	F	SU,SP			BI 370 or BI3 71	CORV = No Freshmen or Sophomores
NR 202	Natural Resource Problems and Solutions	3	SP	F				
RNG 421	Wildland Restoration and Ecology	4	F	F		SP	Coursework in soils and ecology.	
SOIL 468	Soil Landscape Analysis	4		W			SOIL/CSS 466 (may be taken concurrently).	

HMSC = Hatfield Marine Science Center in Newport, Oregon

The following courses can be taken in the NR Core and are required prerequisites for some courses in this option. They are also recommended for career preparation for the Ecological Restoration:	
BI 211, BI 212, BI 213 (On Campus Only) **OR** BI 204, BI 205, BI 206 (Ecampus students only)	It is preferred that students in this option take a "biology for science majors" series in the NR Core. BI 212/BI 204 and BI 213/BI 205 have a prerequisite of CH 121 or an equivalent Chemistry course. You may need to petition the biology department for transfer chemistry courses to be accepted as the prerequisite. Allow time for petitions to be approved and plan accordingly. Contact your Academic Advisor for more information.

Total Credits= 40-42 Option Code= 663

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FISH AND WILDLIFE CONSERVATION								
COURSE NUMBER	COURSE NAME	CREDIT	COR	DSC	CAS	EOU	PREREQUISITES	RESTRICTIONS
Required Courses (22 credits)								
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FOR 111	Introduction to Forestry	3	F	SU,W				
OR FES 342	Forest Types of the Northwest	3		W	F			
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
OR FOR 436	Wildland Fire Science and Management	4	F	F,W				
OR FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W,SP	F			
FW 323	Management Principles of Pacific Salmon in Northwest	3		SU, F, W, SP	W			
OR FW 470*	Ecology and History: Landscapes of Columbia Basin	3					HST 201, 202 and 203 or BI 370 or equiv	Not currently scheduled.
OR FW 360*	Origins of Fish and Wildlife Management	3		F,W, SP			Two terms of coursework at OSU.	
RNG 341	Rangeland Ecology and Management	3	F, W,,SP	SU,F,W,SP	W	F		
RNG 455	Riparian Ecohydrology and Management	4	SP	SU			Recommend RNG 355	
Fish and Wildlife Biology (Choose three of the following)								
FW 311	Ornithology	3	SP	SU, F, W,SP	SP			CORV: No freshman
FW 315	Ichthyology	3	F	SU, F, W,SP				No Freshman.
FW 317	Mammalogy	3	W	SU, F, W, SP	SP		One yr. introductory Biology	CORV = Junior/Senior standing

FW 320	Introductory Population Dynamics	4	W	SU, F, W, SP			BI 370 or BI 371 (may be taken concurrently). Recommend introductory statistics and math equivalent to MTH 245 or higher.	
FW 321	Applied Community and Ecosystem Ecology	3	SP	F, W, SP			FW 320. (May be taken concurrently)	CORV = No Freshman or Sophomore
Habitat Management (Choose two of the following)								
FW 326	Integrated Watershed Management	3		F,W, SP			FW 251 recommended	
FW 435^	Wildlife in Agricultural Ecosystems	3	W	F, W, SP			Recommend BI 370 and FW 251.	CORV = No Freshman or Sophomore
FW 479	Wetlands and Riparian Ecology	3	SP	SU, F, W, SP			Recommend BI 370 or BI 371.	
Natural Resource Policy (Choose one of the following)								
PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
SOC 481*	Society and Natural Resources	4	W,SP	SU, F, W, SP			SOC 204	CORV = No freshman or sophomore
FES 486^	Public Lands Policy and Management	3	F	SP			Sophomore standing recommended.	

The following courses can be taken in the NR Core and are required prerequisites for some courses in this option. They are also recommended for career preparation for the Fish and Wildlife Conservation Option.	
BI 211, BI 212, BI 213 (On Campus Only) **OR** BI 204, BI 205, BI 206 (Ecampus students only)	It is preferred that students in this option take a "biology for science majors" series in the NR Core. BI 211/BI 204 are offered Fall term, BI 212/BI 204 are offered Winter term and BI 213/BI 205 are offered in the Spring term. The courses do not need to be taken in order. BI 212/BI 204 and BI 213/BI 205 have a prerequisite of CH 121 or an equivalent Chemistry course. You may need to petition the biology department for transfer chemistry courses to be accepted as the prerequisite. Allow time for petitions to be approved and plan accordingly. Contact your Academic Advisor for more information.

Total Credits = 41 Option Code = 672

FOREST ECOSYSTEMS								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Ecological Foundations (22 Credits)								
FES 341	Forest Ecology	3	F	F, SP	F		DSC sections require one year biology completed.	
FES 412	Forest Entomology	3	SP				BI 204 or BI 211 or BI 212 or with C or higher and/or equivalent.	
FES/FW 452	Biodiversity Conservation in Managed Forests	3	SP	F			Recommend FES 240 or FES 341 or BI 370.	No freshman or sophomore.
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
BOT/FOR 413	Forest Pathology	3	F				BI 204 or BI 212 or BI 213 and/ or equivalent with C or better	
FOR 441	Silviculture Principles	4	SP				(FES 240 or FOR 240) AND (FES 141 or FES 241) with C minimum in all.	
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W,SP	F			
Ecology Breadth Courses (Choose at least 9 credits from the following)								
BOT 321	Plant Systematics	4	SP				Recommend BI 213.	
BOT 442	Plant Population Ecology	3					BOT 341 or EQUIV	Not scheduled.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FES/HORT/NR 477*	Agroforestry	3	W				Recommend Introductory Biology.	
FOR 436	Wildland Fire Science and Management	4	F	F,W				
OR FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FW 458	Mammal Conservation and Management	4	SP	F,SP			Recommend 9 credits of Upper Div Biological Sciences	
RNG 351	Range Ecology I - Grasslands	3	F	SP		F		
RNG 352	Range Ecology II – Shrub lands	3	W	SP				
RNG 455	Riparian Ecohydrology and Management	4	SP	SU			Recommend RNG 355	

Technical Electives (Choose at least 10 Credits)								
BOT 425	Flora of the Pacific Northwest	3	SP				Recommend BOT 321 or equivalent.	
FE 208	Forest Surveying	4	F	SP			MTH 112 or 241 or 251 or 252 with C or better.	
FE 209	Forest Photogrammetry and Remote Sensing	4	W	SP			MTH 112 or 241 or 251 or 252 with C or better	This course will be dropped and replaced with FE 444.
FE 370	Harvesting Operations	4	F				PH 201 or PH 211 with C or better.	Junior Standing.
FE 444	Remote Sensing and Photogrammetry	4	F				Prerequisites: FE 257 and (MTH 112, 241, 251, 251H, 252 or 252H) and (PH 201 or 211). A minimum grade of C.	Replaces FE 209.
FOR 321	Forest Mensuration	5	F				(FOR 141/FES 141 or FOR/FES 241) and (FE 208 and FE 209) and (MTH 241 or MTH 245 or MTH 251) and (ST201 or ST351) with C minimum in all.	Restricted to COF majors
ST 352	Introduction to Statistical Methods	4	SU, F, W, SP	SU,F, W,SP	SU, W		ST 351	
The following courses can be taken in the NR Core and may be required prerequisites for courses in this option. They are also recommended for career preparation for Forest Ecosystems.								
BI 211, BI 212, BI 213 (On Campus Only) **OR** BI 204, BI 205, BI 206 (Ecampus students only)	It is preferred that students in this option take a "biology for science majors" series in the NR Core. BI 211/BI 204 are offered Fall term, BI 212/BI 204 are offered Winter term and BI 213/BI 205 are offered in the Spring term. The courses do not need to be taken in order. BI 212/BI 204 and BI 213/BI 205 have a prerequisite of CH 121 or an equivalent Chemistry course. You may need to petition the biology department for transfer chemistry courses to be accepted as the prerequisite. Allow time for petitions to be approved and plan accordingly. Contact your Academic Advisor for more information.							
FES 241	Dendrology	3	F, SP	F				
FES 240*	Forest Biology	4	F, SP	SU, F, SP				
FE 430	Watershed Processes	4	F	W				Junior/Senior Standing.
FOR 460^	Forest Policy	4	W					Senior standing, Restricted to COF majors. Lecture and lab.

Total Credits= 40 Option Code= 673

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Human Dimensions of Natural Resources								
Course number	**Course name**	**Credit**	**COR**	**DSC**	**CAS**	**EOU**	**Prerequisites**	**Restrictions**
Ethical Issues (Select 6 credits from the following)								
ANTH 101*	Introduction to Anthropology	3	F, W, SP	SU, F, W, SP				
FES/TOX 435*	Genes and Chemicals in Agriculture: Value and Risk	3	F, SP	SU, F,W			Recommend one quarter each of biology and chemistry	
PHL 201*	Introduction to Philosophy	4		F,W,SP,SU				
PH205*	Ethics	4	F,W,SP, SU	F, W, SP, SU				
PHL 439*	Philosophy of Nature	3						Not currently scheduled.
PHL 440*	Environmental Ethics	3	SP	SU				
PHL/REL 443*	World Views and Environmental Values	3	F, W, SP	SU, F, W, SP			One introductory-level science	Sophomore standing
PHL 470	Philosophy of Science	3	W				Recommend 6 credits of upper-division philosophy and sophomore standing.	Not offered every year.

Management and Communication Issues (Select 13 from the following):								
AEC 253*	Environmental Law, Policy and Economics	4	W	SU,F,W,SP				
AEC351*	Natural Resource Economics and Policy	3	W,SP	F, SP			MTH 111 and AEC 250 or ECON 201	
AEC/ECON 352*	Environmental Economics and Policy	3	F, SP	SU, F, SP	W		AEC 250 or ECON 201	Students with the Wildland Fire Ecology Option should take AEC 351 or AEC 352 as it is a prerequisite for required classes in that option.
FES 355	Management for Multiple Resource Values	3		F, SP				
FES 365*	Issues in Natural Resource Conservation	3	W~	SU,W	SP			W~= International Sites
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W,SP	F			
FW 326	Integrated Watershed Management	3		F,W, SP			FW 251 recommended	

NR 202	Natural Resource Problems and Solutions	3	SP	F				
TRAL 351	Outdoor Recreation on Public Lands	4	W				FES/TRAL 251	No Freshman/Sophomore
TRAL 352	Wilderness Management	3		SU, F,W,SP				
Social Issues (21 Credits)								
Required Background Course (SOC204 is the required prerequisite for the other SOC classes in this option).								
SOC 204*	Introduction to Sociology	3	SU,F,W,SP	SU,F,W,SP	W			
AND Choose 18 Credits from the following:								
AEC 432	Environmental Law	4	SP	SP				
ANTH 477	Ecological Anthropology	3		F			Recommend 3 credits social science and Junior/Senior standing	
ANTH 481*	Natural Resources and Community Values	3		SU			Recommend 3 credits of social science.	
FW 340*	Multicultural Perspectives in Natural Resources	3	SP	SU, F, W, SP				
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
GEOG 300*	Sustainability for the Common Good	3	SU, F, W,SP	SU,F, W,SP				Junior/Senior standfing.
LEAD 342	Team and Organizational Leadership	3	SP	F,W, SP				
NR 312	Critical Thinking for NR Challenges	3	W					
PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
SOC 360	Population Trends and Policy	4	F	F,W				
SOC 454*	Leisure and Culture	4		SU, F, W,SP			SOC 204	
SOC 456*	Science and Technology in Social Context	4					SOC 204	Junior Standing. Not currently scheduled.
SOC 480*	Environmental Sociology	4	F	SU	SU		SOC 204	
SOC 481*	Society and Natural Resources	4	W,SP	SU, F, W, SP			SOC 204	CORV = No freshman or sophomore
SUS 350*	Sustainable Communities	4	F, W, SP	SU, F, W,SP	F			
WGSS 440*	Women and Natural Resources	3	SP	F, W,				
WGSS 450	Ecofeminsim	3						Not currently scheduled.

Total Credits= 40 Option Code= 675

Individualized Specialty Option (Student Designed)

The Individualized Specialty Option is a student designed option that allows a student to tailor his or her academic program to specific goals or interests. The requirements are the same as the other options; minimum of 40 credits, a minimum of 20 upper division credits, and no more than 24 credits with the same departmental course designator (FOR, FES, NR, etc..). This option is often a good choice for transfer students who have applicable coursework that doesn't fit eslewhere.

The student must submit a Petition that includes a program of study listing the courses that are going to be used in the option. Part 2 of the petition is a brief essay that describes the goals and employment opportunities provided by this option. The student will work closely with an advisor to choose courses and to develop a professional proposal that is then submitted to the Program Director for approval. Students should complete this approval process no less than 6 terms before graduation.

INDIVIDUALIZED SPECIALTY OPTION								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Requirements for an ISO								
Contain at least 20 credits of upper-division courses Consist of a minimum of 40 credits, encompassing at least three departments, with not more than 24 credits from one department Has course work that reflects stated area of specialization and desired goals								

Total Credits= 40 minimum Option Code= 676

Integrated Conservation Analysis [Corvallis Campus]

INTEGRATED CONSERVATION ANALYSIS								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Integrated Analysis (15 credits)								
NR 202	Natural Resource Problems and Solutions	3	SP	F				
NR 312	Critical Thinking for NR Challenges	3	W					
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	
NR 351*	When Science Escapes the Lab	3	SP					
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
Disciplinary Focus (25 CREDITS MINIMUM)								

- Students will select an area of study for disciplinary depth from Policy, Social Science/Human Dimensions or an Ecological discipline.
- Students will be required to submit an academic plan for completion of the option which will be approved by the Natural Resources Program Director. The academic plan must include a minimum of 20 upper-division courses.

Total Credits= 40 minimum Option Code= 735

LANDSCAPE ANALYSIS								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
GIScience Required Courses (16 credits)								
GEOG 201*	Foundations of Geospatial Science and GIS	4	F,W	SU,F,SP				
GEOG 360	Geoscience I: Geographic Information Systems and Theory	4	F,SP	F, W	W			
GEOG 370	Geo-visualization: Cartography	4	W	F			GEOG 201 or GEO 301	
GEOG 480	Remote Sensing I: Principles and Applications	4	F	SP			GEOG 201 or GEO 301 with C- or better	
GIScience Electives (Choose 7-8 credits)								
CE 413	GIS In Water Resources	3	SU,W				Recommend Senior standing or a previous introductory GIS course.	
CROP/HORT 414	Precision Agriculture	4	SP (hybrid)	W				
~~ECE 468~~	~~Digital Image Processing~~	~~3~~	~~F~~	-	-	-	~~ECE 351 and ECE 352 with C or better~~	~~Restricted to College of Engineering.~~
NR 410	Internship	6-Jan	SU,F,W,SP	SU,F,W,SP				Departmental Approval Required. Internship must involve GIS.
FE 209	Forest Photogrammetry and Remote Sensing	4	W	SP			MTH 112 or 241 or 251 or 252 with C or better	This course will be dropped and replaced with FE 444.
FE 310	Forest Route Surveying	4	SP				(FE 208 or FE 308) or CE 361 or CEM 263 (all with C or better)	Enrollment is limited to students with a program in Forest Engineering, Ecological Engineering, Forest Operations, Forest Management or Geographic Information Science. Instructor permission required.
FE 423	Unmanned Aircraft Systems Remote Sensing	3	F				FE 309 or GEOG 480 or GEO 444 or GEO 466 (all with C or better)	Seniors only.
FE 444	Remote Sensing and Photogrammetry	4	F				Prerequisites: FE 257 and (MTH 112, 241, 251, 251H, 252 or 252H) and (PH 201 or 211). A minimum grade of C.	Replaces FE 209.

FW 303	Survey of Geographic Information Systems	3		SU,F, W,SP				NOT a lab/skills class.
GEOG 361	GIScience II: Analysis and Applications	4	W	SP			GEOG 360 and MTH 112 and (ST 201 or ST 351). Minimum C- or better in all.	
GEOG 371	Geovisualization: Web Mapping	4	F				GEOG 201 or GEO 301	
GEOG 451	Planning Principles and Practices for Resilient Communities	4	F	SP?			GEOG 360 or GEOG 560 or GEO 365 or GEO 465 (all C- or better)	Lecture and lab. Register for both.
GEOG 462	GIScience III: Programming for Geospatial Analysis	4	SP	SP			GEOG 361 or GEOG 561 or GEO 480. Minimum of C- in all.	
GEOG 463	GIScience IV: Spatial Modeling	4					GEOG 462 or GEOG 562 or GEO 578 (all C- or better)	Not currently scheduled.
GEOG 464	Geospatial Perspectives	3	SP				GEOG 360 or GEOG 560 or GEO 365 or GEO 465. Minimum of C- in all.	
GEOG 472	Geo-visualization: Geo-visual Analytics	3					GEOG 370 or GEOG 371 or GEO 360. Minimum of C- on all.	Not currently scheduled.
GEOG 481	Remote Sensing II: Digital Image Processing	4	W	SP???			GEOG 480 or GEO 580 or GEO 444 or GEO 544 (with C- or better) and ST 202 or ST 352 with D- or better.	
SOIL 468	Soil Landscape Analysis	4		W			SOIL/CSS 466 (may be taken concurrently).	

Choose Natural Resource Electives for this option (16-17 credits minimum)

Choose a minimum of 16-17 credits in disciplinary area related to GIScience to reach a minimum of 40 credits in the option. Students will be required to submit an academic plan for completion of the option which will be approved by the Natural Resources Program Director. Ask you Academic Advisor for more information.

IMPORTANT NOTE: The following courses should be taken in the NR Core and are required for the GIS Certificate: MTH 112/Mathematics and FE 208 Forest Surveying/Measurements. MTH 112 for Mathematics, FE 208 for Measurments

Total Credits= 40 Option Code= 689

NATURAL RESOURCE EDUCATION								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Natural Resources Base (17 credits)								
TRAL 251	Recreation Resource Management	4	F	W				
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W,SP	F			
RNG 341	Rangeland Ecology and Management	3	F, W,,SP	SU,F,W,SP	W	F		
Plus **7** different credits from AG, FE, FOR, FS, FW, GEO. GEOG or another area of natural resources		7						
Education/Communication Processes (23 credits)								
ED 216*	Purpose, Structure and Function of Ed in a Democracy	3	SU, F, W, SP	SU, SP				
ED 219	Civil Rights and Multicultural Issues in Education	3	SU, F, W, SP	SU, F				
ED 253	Learning Across the Lifespan	3	W, SP	SU, F,W,SP				
FES 430	Forest as Classroom	4		F,SP				
OR TRAL 493	Environmental Interpretation	4	SP	SU, F, W,SP				CORV: Junior/Senior Standing only
SOC 450	Sociology of Education	4	F	F, SP			SOC 204	
WR 327*	Technical Writing	3	SU,F,W,SP	SU,F,W,SP			WR 121 C- or better	No freshman.
Plus **3** upper division credits in speech communication, education (see especially Teacher and Counselor Education, agriculture education, writing, or an allied communication/education field								
Supervised internships can be used to meet this requirement if approved in advance								
The following courses can be taken in the NR Core and Breadth are suggested for career preparation for Natural Resource Education:								
FES 241	Dendrology	3	F, SP	F				
Note: Writing I, Writing II and Speech are required by the Baccalaureate Core and may not be used toward the 3 additional credits requirement above. WR327 must be taken in addition to Writing I, Writing II or Speech.								

Total Credits= 40 Option Code= 679

NATURAL RESOURCE POLICY AND MANAGEMENT								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Social Science Foundation (Choose at least two of the following)								
PHL 201*	Introduction to Philosophy	4		SU,F, W, SP	F			
PS 201*	Introduction to United States Government and Politics	4	F,W,SP	SU,F,W,SP	F			
PSY 201*	General Psychology	3	SU, F, W, SP	SU,F, W, SP	W			
or PSY202*	General Psychology	3	SU, F, W, SP	SU,F, W, SP	SP			
SOC 204*	Introduction to Sociology	3	SU, F, W, SP	SU, F, W, SP	W			

Social Science and Natural Resources (Choose at least 3 courses with no more than two from the same department)								
AG 301*	Ecosystems Science of the PNW Indians	3	F, W	SU,F,W, SP				
COMM 321	Introduction to Communication Theory	3	F, W, SP		F			Maj/Min rest to COMM majors/no freshman only for W term in CORV.
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
FOR 111	Introduction to Forestry	3	F	SU,W				
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W,SP	F			
FW 323	Management Principles of Pacific Salmon in Northwest	3		SU, F, W, SP	W			
FW 340*	Multicultural Perspectives in Natural Resources	3	SP	SU, F, W, SP				
FW 470*	Ecology and History: Landscapes of Columbia Basin	3					HST 201, 202 and 203 or BI 370 or equiv	Not currently scheduled.
GEOG 300*	Sustainability for the Common Good	3	SU, F, W,SP	SU,F, W,SP				Junior/Senior standfing.
NR 312	Critical Thinking for NR Challenges	3	W					
SOC 360	Population Trends and Policy	4	F	F,W				
SOC 454*	Leisure and Culture	4		SU, F, W, SP			SOC 204	
SOC 456*	Science and Technology in Social Context	4	W				SOC 204	Not scheduled.
SOC 480*	Environmental Sociology	4	F	SU	SU		SOC 204	

SOC 481*	Society and Natural Resources	4	W,SP	SU, F, W, SP			SOC 204	CORV = No freshman or sophomore
Natural Resources Policy and Management (Choose at least 25 credits from the list below)								
AEC 253*	Environmental Law, Policy and Economics	4	W	SU,F,W				
BOT 440	Field Methods in Plant Ecology	4		SU,SP			Recommend an ecology course and statistics.	
ENSC 479^	Environmental Case Studies	3	W	SU,SP	W		One year of college biology or chemistry recommended.	
FES 342	Forest Types of the Northwest	3		W	F			
FES 365*	Issues in Natural Resource Conservation	3	W~	SU,W	SP			W~= International Sites
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
FOR 431	Economics and Policy of Forest Wildland Fire	4	SP				AEC 351 or AEC/ECON 352 or FOR 330 with C or better	Course replaces FES 454 in Wildland Fire Ecology Option.
FOR 436	Wildland Fire Science and Management	4	F	F,W				
FW 303	Survey of Geographic Information Systems	3		SU,F, W,SP				NOT a lab/skills class.
FW 311	Ornithology	3	SP	SU, F, W,SP	SP			CORV: No freshman
FW 315	Ichthyology	3	F	SU, F, W,SP				No Freshman.
FW 317	Mammalogy	3	F	SU, F, W, SP	SP		One yr. introductory Biology	CORV= Junior/Senior standing
FW 320	Introductory Population Dynamics	4	W	SU, F, W, SP			BI 370 or BI 371 (may be taken concurrently). Recommend introductory statistics and math equivalent to MTH 245 or higher.	
FW 321	Applied Community and Ecosystem Ecology	3	SP	F, W, SP			FW 320. (May be taken concurrently)	CORV = No Freshman or Sophomore
FW 325*	Global Crises in Resource Ecology	3		SU,F, W,SP				
FW 326	Integrated Watershed Management	3		F,W, SP			FW 251 recommended	
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
FW 427	Principles of Wildlife Diseases	4		SU,SP				Junior standing or instructor approval
FW 435^	Wildlife in Agricultural Ecosystems	3	W	F, W, SP			Recommend BI 370 and FW 251.	CORV = No Freshman or Sophomore

FW 479	Wetlands and Riparian Ecology	3	SP	SU, F, W, SP			Recommend BI 370 or BI 371.	
GEO 308*	Global Change and Earth Sciences	3	SU,F,W	SU, W,SP				
GEOG 201*	Foundations of Geospatial Science and GIS	4	F,W	SU,F,SP				
GEOG 360	Geoscience I: Geographic Information Systems and Theory	4	F,SP	F, W	W			
NR 202	Natural Resource Problems and Solutions	3	SP	F				
~~PS 449^~~	~~Topics in Comparative Politics~~	~~4~~	-	~~SU, W~~	-			Not scheduled.
PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
RNG 455	Riparian Ecohydrology and Management	4	SP	SU			Recommend RNG 355	
RNG 490	Rangeland Management and Planning	4	SP	W		W		
TRAL 352	Wilderness Management	3		SU, F,W,SP				

Total Credits= 40 Option Code=680

URBAN FOREST LANDSCAPES								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Urban Forest Foundations (22 - 23 credits)								
FES/HORT 350	Urban Forestry	3		F, W			Foundational Horticulture or Forestry courses recommended.	
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FES/HORT447	Arboriculture	4		SP			Any basic ecology course	
FES/HORT 455	Urban Forest Planning, Policy and Management	4		F				
HORT 226	Landscape Plant Materials I: Deciduous & Coniferous	4	F	F				
HORT 318^	Applied Ecology of Managed Ecosystems	3	W	F, SP				CORV=Phase I restriction. Open to NR in Phase II
or HORT 315	Sustainable Landscapes: Maintenance, Conservation, Restore	4	W	SP			Basic knowledge of plant physiology is recommended.	
Social/Political/Community Integration (19-20 credits)								
ANTH 481*	Natural Resources and Community Values	3		SU			Recommend 3 credits of social science.	
FES 485	Consensus and Natural Resources	3	F,W	SU,W,SP	SP			Upper class standing.
FOR 462	Natural Resources Policy and Law	3	F					No freshmen or sophomore. No Non-Degree or INTO
OR PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
FW 462	Ecosystems Services	3		W,SP			BI 370 or equivalent recommended.	
GEOG 450	Land Use in the American West	3						Not currently scheduled.
OR FW 435^	Wildlife in Agricultural Ecosystems	3	W	F, W, SP			Recommend BI 370 and FW 251.	CORV = No Freshman or Sophomore
SOC 481*	Society and Natural Resources	4	W,SP	SU, F, W, SP			SOC 204	CORV = No freshman or sophomore

Total Credits=41-43 Option Code=685

Wildland Fire Ecology

WILDLAND FIRE ECOLOGY								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Foundations in Wildland Fire and Recovery (21 Credits)								
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
OR RNG 421	Wildland Restoration and Ecology	4	F	F		SP	Coursework in soils and ecology.	
~~FES 454~~	~~Managing at the Wildland-Urban Interface~~	~~3~~	~~F~~	~~W~~	-	-		NO LONGER OFFERED. See Advisor.
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
FOR 436	Wildland Fire Science and Management	4	F	F,W				
FOR 441	Silviculture Principles	4	SP				(FES 240 or FOR 240) AND (FES 141 or FES 241) with C minimum in all.	
Ecological and Natural Resource Electives (Choose 19 Credits)								
BOT 442	Plant Population Ecology	3					BOT 341 or equivalent	Not currently scheduled.
CROP 440	Weed Management	4	F	W,SP			One year biological science and one cousre in organic chemistry.	
FES 342	Forest Types of the Northwest	3		W	F			
FES 412	Forest Entomology	3	SP				BI 204 or BI 211 or BI 212 or with C or higher and/or equivalent.	
FES/FW 452	Biodiversity Conservation in Managed Forests	3	SP	F			Recommend FES 240 or FES 341 or BI 370.	No freshman or sophomore.
BOT/FOR 413	Forest Pathology	3	F				BI 204 or BI 212 or BI 213 and/ or equivalent with C or better	
FOR 431	Economics and Policy of Forest Wildland Fire	4	SP				AEC 351 or AEC/ECON 352 or FOR 330 with C or better	Course replaces FES 454 in Wildland Fire Ecology Option.
FW 458	Mammal Conservation and Management	4	SP	F,SP			Recommend 9 credits of Upper Div Biological Sciences	
SOIL 366	Ecosystems of Wildland Soils	3		W	SP		SOIL 205 or CSS 205 or CS 305	
OR SOIL 388	Soil Systems and Plant Growth	4		F			(SOIL 205 and SOIL /FOR 206 or CSS 205) and (CH 121 or CH 231) and (BOT 220 or (BI 204 or BI 205 or BI 206 or BI 211 or BI112 or BI213)	
OR SOIL 466	Soil Morphology and Classification	4	SP	F,SP		SP	SOIL 205 or CSS 205 or CSS 305	
SOIL 468	Soil Landscape Analysis	4		W			SOIL/CSS 466 (may be taken concurrently).	

Total Credits= 40 Option Code= 687

Appendix A

Effective Summer Term 2018

This section contains Specialization Options that have been removed from the curriculum. Students currently enrolled in these options can use these guides for course planning. Students who wish to pursue these areas of study can use the course guides as a template for an Individualized Specialty Option but can no longer declare the option by name. Talk to your advisor about the new NR3 curriculum!

ARID LAND ECOLOGY

ARID LAND ECOLOGY								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Rangeland Resources (17 Credits)								
RNG 341	Rangeland Ecology and Management	3	F, W,,SP	SU,F,W,SP	W	F		
RNG 352	Range Ecology II – Shrub lands	3	W	SP				
RNG 353	Wildland Plant Identification	4	F	SU, SP	F	SP		
RNG 421	Wildland Restoration and Ecology	4	F	F		SP	Coursework in soils and ecology.	
RNG 442	Rangeland-Animal Relations	4	SP	SP				

Animals, Plant, Soils and Ecology (23 Credits)								
BOT 313	Plant Structure	4					BI 213 or 213H	
BOT 321	Plant Systematics	4	SP				Recommend BI 213.	
BOT 414	Agrostology	4						Not currently scheduled.
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FOR 436	Wildland Fire Science and Management	4	F	F,W				
NR 202	Natural Resource Problems and Solutions	3	SP	F				
SOIL 466	Soil Morphology and Classification	4					SOIL/CSS 205	

The following courses can be taken in the NR Core and Breadth and are required prerequisites for courses in this option. They are also recommended for career preparation for the Arid Land Ecology:								
BI 211, BI 212, BI 213 (On Campus Only) **OR** BI 204, BI 205, BI 206 (Ecampus students only)	It is required for students in this option take a "biology for science majors" series in the NR Core. BI 211/BI 204 are offered Fall term, BI 212/BI 204 are offered Winter term and BI 213/BI 205 are offered in the Spring term. The courses do not need to be taken in order. BI 212/BI 204 and BI 213/BI 205 have a prerequisite of CH 121 or an equivalent Chemistry course. You may need to petition the biology department for transfer chemistry courses to be accepted as the prerequisite. Allow time for petitions to be approved and plan accordingly. Contact your Academic Advisor for more information.							
RNG 441	Rangeland Analysis	4	F	SU		SP	Recommend ST 351.	CORV: Lecture and lab.
RNG 490	Rangeland Management and Planning	4	SP	W		W		

ST 351	Intro to Statistical Methods	4	SU, F, W, SP	SU, F, W,SP	SU,F		High School Algebra with Statistics.	DSC has Proctored Exam.

Total Credits: 41 Option Code: 669

Conservation and Technology

Note: This option is designed for the OSU-Cascades Campus. Students utilize course work from the Cascades campus partner institution Central Oregon Community College. The option may be modified to provide appropriate transfer of courses from other community colleges with forest technology degree programs. The courses in the lists below are only available at Central Oregon Community College (COCC): FW 251, FOR 220A, FOR 230A, FOR 230B, FOR 240B.

COCC Course Catalog: http://www.cocc.edu/admissions/catalog/

CONSERVATON AND TECHNOLOGY								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Conservation Courses (Choose 3 courses, 9 credits)								
FES 365*	Issues in Natural Resource Conservation	3	W~	SU,W	SP			W~= International Sites
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W,SP	F			
FW 325*	Global Crises in Resource Ecology	3		SU,F, W,SP				
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
BI 371^	Ecological Methods	3					BI 370	**Restricted to certain majors in Phase I.**
FOR 199	Special Studies: Datasets in Natural Resources	3					**Offered at COCC**	
FOR 220A	Aerial Photo [COCC]	3					**Offered at COCC**	
FOR 230A	Map, Compass and GPS [COCC]	3					**Offered Fall term at COCC**	
FOR 230B	Forest Surveying [COCC]	3					**Offered Winter term at COCC**	
SOIL 408	Workshop: Soil Judging	2						
And/or NR 499	Special Topics: Field Instruments	2						Not currently offered
SUS350*	Sustainable Communities	4						
Ecology and Ecosystems (Choose 18-19 Credits from the following or electives approved by petition by OSU-Cascades)								
ENSC 479^	Environmental Case Studies	3	W	SU,SP	W		One year of college biology or chemistry recommended.	

FES 342	Forest Types of the Northwest	3		W	F			
FES 444	Ecological Aspects of Park Management				F		An ecology course and completion or concurrent enrollment in FES 251 or FOR 251	
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FOR 240B	Wildlife Ecology [COCC]	3					**Offered Fall term at COCC**	
FW 311	Ornithology	3	SP	SU, F, W,SP	SP			CORV: No freshman
FW 317	Mammalogy	3					One yr. introductory Biology	CORV = Junior/Senior standing
FW 320	Introductory Population Dynamics	4	W	SU, F, W, SP			BI 370 or BI 371 (may be taken concurrently). Recommend introductory statistics and math equivalent to MTH 245 or higher.	
FW 326	Integrated Watershed Management	3		F,W, SP			FW 251 recommended	
FW 479	Wetlands and Riparian Ecology	3	SP	SU, F, W, SP			Recommend BI 370 or BI 371.	
FW 481	Wildlife Ecology	3					BI 370 or equivalent	
GEO 322	Surface Processes						GEO102 or GEO202 and MTH251 (C-) and PH201 or PH211	
PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
RNG 351	Range Ecology I - Grasslands	3	F	SP		F		
SOIL 366	Ecosystems of Wildland Soils	3		W	SP		SOIL 205 or CSS 205 or CS 305	
Z 349 *	Biodiversity: Causes, Consequences and Conservation	3	F,W	F,SP, SU	SP			No freshman.
Z 477	Aquatic Entomology	4	W		F		BI 211/212/213 or BI 204/ 205/206 with C- or better, Lab is a Co-requisite	Two required Saturday field trips. Exact dates depend on weather.
[COCC] course at Central Oregon Community College ~ Option may be modified to allow appropriate transfer courses from other community colleges with forest technology degrees.								

Total Credits: 40 Option Code: 688

LAW ENFORCEMENT AND NATURAL RESOURCES								
Course number	**Course name**	**Credit**	**COR**	**DSC**	**CAS**	**EOU**	**Prerequisites/Restrictions**	**Note**
Required Courses								
COMM 440	Theories of Conflict and Conflict Management	3	F		W		COMM 321	Students who have taken FES 485 can request an override from the instructor.
TRAL 251	Recreation Resource Management	4	F	W				
FES/FW 452	Biodiversity Conservation in Managed Forests	3	SP	F			Recommend FES 240 or FES 341 or BI 370.	No freshman or sophomore.
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W,SP	F			
FW 316	Systematics of Fishes	3	F	SU,W			BI211/212/213 OR BI204/ 205/ 206, Recommend FW315 as co-requisite.	No freshman. CORV has two weekend field trips.
FW 318	Systematics of Mammals	2	W	SU, W, SP	W		One yr. intro biology	No freshman.
FW 341	Fish and Wildlife Law Enforcement	2	F					CORV: Five week class in the 2nd half of term.
FW 458	Mammal Conservation and Management	4	SP	F,SP			Recommend 9 credits of Upper Div Biological Sciences	
SOC 204*	Introduction to Sociology	3	SU,F,W,SP	SU,F,W,SP	W			
Choose four of the following courses:								
SOC 340	Deviant Behavior and Social Control	4					SOC 204	Fall term COR=restricted to freshmen. All other terms/sections no restrictions
~~SOC 440~~	~~Juvenile Delinquency~~	~~4~~					~~SOC 204~~	Restricted to Sociology majors
SOC 441	Criminology and Penology	4		SU			SOC 204	
SOC 442	Sociology of Drug use and Abuse	4					SOC 204	Spring term CORV=restricted to SOC majors and no freshmen. All other terms/sections no restrictions.

SOC 448	Law and Society	3					SOC 204	**Not scheduled.**
The following courses can be taken in the NR Core and Breadth are suggested for career preparation for Natural Resource Law Enforcement:								
FOR 462	NR Policy and Law *(NR Policy or Political Dimensions)*	3						No freshmen or sophomores

Total Credits= 41 Option Code=677

RECREATION AND TOURISM MANAGEMENT								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Recreation and Tourism Management Foundation (Choose 19-20 credits)								
FES 422	Research Methods in Social Science	4	W	F	SP		ST 201 or ST 351	
TRAL 251	Recreation Resource Management	4	F	W				
TRAL 351	Outdoor Recreation on Public Lands	4	W				FES/TRAL 251	No Freshman/Sophomore
TRAL 353	Nature, Eco and Adventure Tourism	3	F		F			
TRAL 357*	Parks and Protected Areas Management	3	F					
OR TRAL 352	Wilderness Management	3		SU, F,W,SP				
TRAL 456	Planning for Sustainable Recreation	4	W				FES/TRAL 251 with minimum grade of C-.	Lecture and Lab.
OR TRAL 457	Planning for Sustainable Tourism	4	SP				FES/TRAL 251 with minimum grade of C-.	Lecture and lab.
TRAL 493	Environmental Interpretation	4	SP	SU, F, W,SP				CORV: Junior/Senior Standing only
Technical/Field Skills (Choose 10-11 credits minimum)								
CS 195	Website Design	4						
FE 208	Forest Surveying	4	F	SP			MTH 112 or 241 or 251 or 252 with C or better.	
FW 255	Field Sampling of Fish and Wildlife	3	SU, F, W, SP	SU, F, W,SP	SP		DSC: WR 121 and familiarity with personal computers recommended.	
FW 341	Fish and Wildlife Law Enforcement	2	F					CORV: Five week class in the 2nd half of term.
GEOG 201*	Foundations of Geospatial Science and GIS	4	F,W	SU,F,SP				
GEOG 370	Geo-visualization: Cartography	4	W	F			GEOG 201 or GEO 301	
GEOG 472	Geo-visualization: Geo-visual Analytics	3					GEOG 370 or GEOG 371 or GEO 360. Minimum of C- on all.	Not currently scheduled.

Applications in Recreation and Social Science (choose 10-11 credits minimum)								
AEC 253*	Environmental Law, Policy and Economics	4	W	SU,F,W				
ANTH 477	Ecological Anthropology	3		F			Recommend 3 credits social science and Junior/Senior standing	
COMM 324	Communication in Organizations	3	F		F			
COMM 326	Intercultural Communication	3	W		F			
PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
SOC 454*	Leisure and Culture	4					SOC 204	
SOC 481*	Society and Natural Resources	4	W,SP	SU, F, W, SP			SOC 204	CORV = No freshman or sophomore

Total Credits = 40 Option Code: 681

SUSTAINABLE AGROFORESTRY								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
Recreation and Tourism Management Foundation (19-20 credits)								
BOT 488	Environmental Physiology of Plants	3	W				Recommend one course in plant physiology or ecology	
CH 122*	General Chemistry	5	W, SP	SU, F, W,SP	W		CH 121 with C- or better	
OR CH 232*	General Chemistry	4	SU, W, SP	SU,W	W		CH 231 and labs with C- or better	Separate lab is not required for Ecampus students.
and CH262*	Lab for CH232	1					CH 261 or CH 271 or CH 221 or CH 224H. Co-Req for CH 232.	
CROP/HORT 300	Crop Production in Pacific Northwest Agroecosystems	4					One year general bio or equiv	
CROP 440	Weed Management	4	F	W,SP			One year biological science and one cousre in organic chemistry.	
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
CSS 306	Problem Solving: Soil Science Applications	1						Not offered on CORV or Ecampus
CSS315^	Nutrient Management and Cycling	4					CSS 305 and CH 122	Not offered on CORV or Ecampus
or HORT 316	Plant Nutrition	4					SOIL 205 or CSS 205 or CSS 305	
FES 433	Planning Agroforestry Projects	2					BOT 341 and/or equiv. course in ecology	
FES/HORT/NR 477*	Agroforestry	3	W				Recommend Introductory Biology.	
FOR 441	Silviculture Principles	4	SP				(FES 240 or FOR 240) AND (FES 141 or FES 241) with C minimum in all.	
or HORT 301	The Biology of Horticulture	3					General Bio or Botany sequence	Phase I restrictions. Open to NR in Phase II.
HORT 311	Plant Propagation	4					HORT 301	
RNG 442	Rangeland-Animal Relations	4	SP	SP				

Choose one of the following courses:								
ANS 215	Beef/Dairy Industries	3					ANS 121	
ANS 216	Sheep/Swine Industries	3					ANS 121	
CROP 310	Forage Production	4					CSS 300 or CROP/HORT 300 and SOIL 205 or CSS 205/305 or equivalent.	
HORT 451	Tree Fruit Physiology and Culture	4					HORT 301 and BOT 331	Not Scheduled.
HORT 452	Berry and Grape Physiology and Culture	4					HORT 301	Offered in alternative years.
NR 202	Natural Resource Problems and Solutions	3	SP	F				
The following courses can be taken in the NR Core and Breadth and are recommended for career preparation for Sustainable Agroforestry:								
RNG 441	Rangeland Analysis	4	F	SU		SP	Recommend ST 351.	CORV: Lecture and lab.

Total Credits= 40-42 Option Code= 684

Watershed Management

WATERSHED MANAGEMENT								
COURSE NUMBER	**COURSE NAME**	**CREDIT**	**COR**	**DSC**	**CAS**	**EOU**	**PREREQUISITES**	**RESTRICTIONS**
CH 122*	General Chemistry	5					CH 121 or higher and appropriate labs with a C- or better	
OR CH 232*	General Chemistry	4	SU, W, SP	SU,W	W		CH 231 and labs with C- or better	Separate lab is not required for Ecampus students.
AND CH 262*	Laboratory for CH232	1	SU, W, SP		W		Co-requisite for CH232	
FE 430	Watershed Processes	4	F	W				Junior/Senior Standing.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP		Offered FW in even years and FES in odd years on the CORV campus.	
FW 315	Ichthyology	3	F	SU, F, W,SP				No Freshman.
and FW316	Systematics of Fishes	2					BI 211, 212, 213 or BI 204.205,206	Recommended co-req with FW 315
or just GEO487	Hydrogeology	4					MTH 252 and GEO 202	
FW 456	Freshwater Ecology and Conservation	5	SP	SP,W			BI 370 or BI 371	(formerly called Limnology)
MTH 252*	Integral Calculus	4					MTH 251 with C- or better	
PH201*	General Physics	5					MTH 111 and MTH 112	PH 201, 202, 203 must be taken in order
and PH 202*	General Physics	5					MTH 111 and MTH 112 and PH 201	
OR PH 211	General Physics with Calculus	4						
And PH 212	General Physics with Calculus	4						
RNG 455	Riparian Ecohydrology and Management	4	SP	SU			Recommend RNG 355	
OR FW 479	Wetlands and Riparian Ecology	3	SP	SU, F, W, SP			Recommend BI 370 or BI 371.	
SOIL 466	Soil Morphology and Classification	4	SP	F,SP		SP	SOIL 205 or CSS 205 or CSS 305	
The following courses should be taken in the NR Core and are required prerequisites for some courses in this Option. They are also recommended for career preparation in Watershed Management..								
BI 211, BI 212, BI 213 (On Campus Only) **OR**	It is preferred that students in this option take a "biology for science majors" series in the NR Core. BI 212/BI 204 and BI 213/BI 205 have a prerequisite of CH 121 or an equivalent Chemistry course. You may need to petition the biology department for transfer chemistry courses to be accepted as the prerequisite. Allow time for petitions to be approved and plan accordingly. Contact your Academic Advisor for more information.							

BI 204, BI 205, BI 206 (Ecampus students only)								
BI 370	General Ecology	3	F, W, SP	SU, F, W, SP	W		BI 211,212,213 (C-minimum) or BI 204, 205, 206 (C-minimum)	Required for some specialization options and a prerequisite for many courses.
FE 208	Forest Surveying	4	F	SP			MTH 112 or 241 or 251 or 252 with C or better.	
MTH251*	Differential Calculus *(Mathematics)*	4					MTH 111 or ALEKS placement test score of 75%	
RNG 355	Desert Watershed Management	4	F	F,W				

Total Credits: 43-44 Option Code: 686