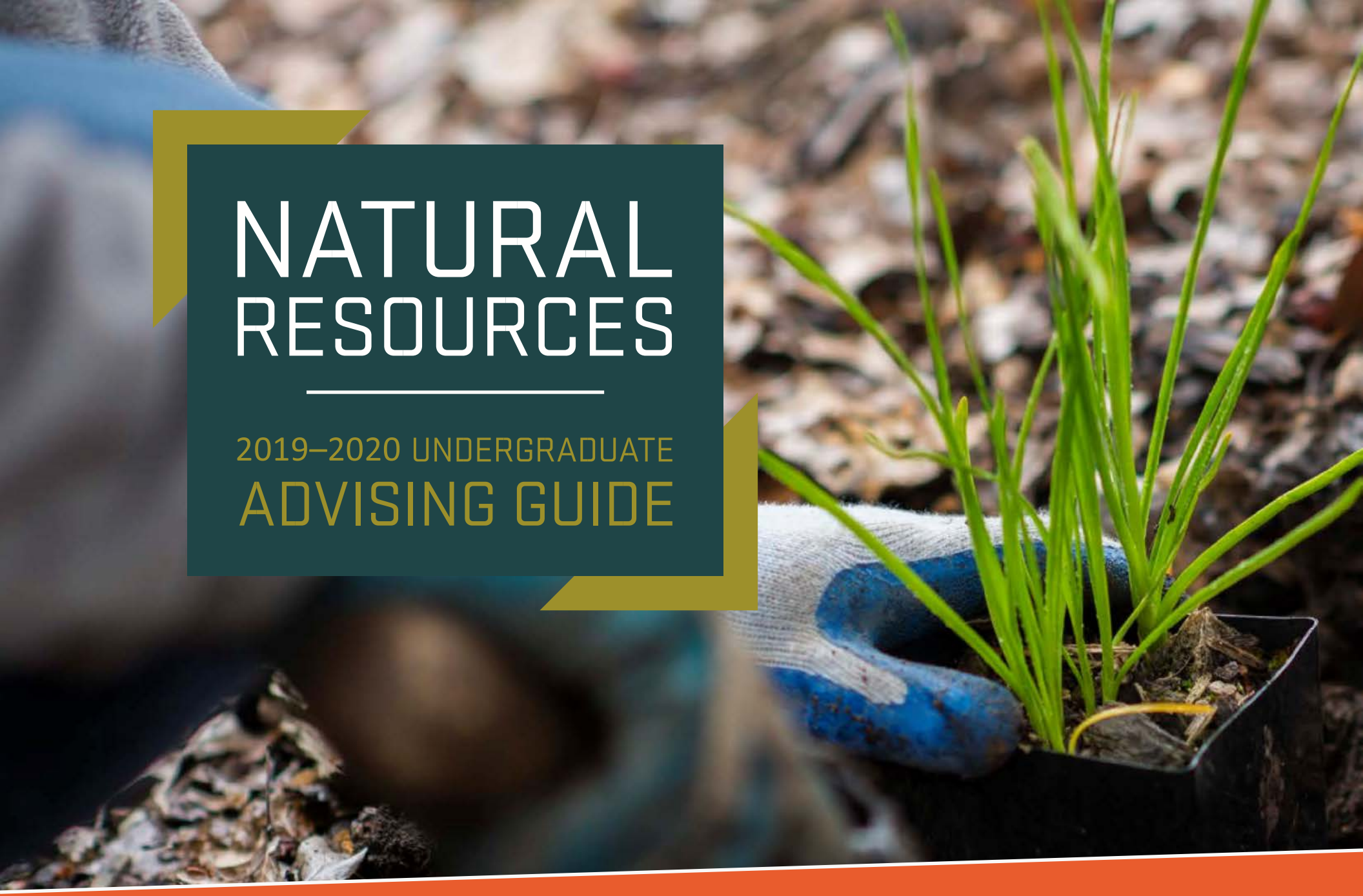

NATURAL RESOURCES

2019–2020 UNDERGRADUATE ADVISING GUIDE

Oregon State University

BACHELOR OF SCIENCE

DEPARTMENT OFFICE:
Forest Ecosystems + Society
Richardson Hall 321
541-737-2244

ADVISING OFFICE:
Terina McLachlain
Snell Hall 409
541-207-3580

NRv3.0

(For students admitted in Spring 2018 and later or those who elected to revise their catalog year to 2018-19)

DISCLAIMER: Content in this guide is for advising purposes 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.

https://classes.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 10.2019 for Winter Term 2020

NOTE: This Advising Guide reflects the requirements for students who were admitted in the summer of 2018 or later (NR 3). Students who were admitted prior to Summer 2018 are under the requirements of the previous curriculum (NR 2) unless they choose to change their catalog year.

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Welcome to the Natural Resources Program at OSU

Students who graduate with a BS degree in Natural Resources from OSU will learn to integrate technical field or laboratory skills with analytical skills to solve critical natural resource problems. The curriculum is designed to help students acquire knowledge about a range of natural resource issues, work in interdisciplinary teams, and deal with social and political aspects of resource management.

Students will acquire knowledge in biophysical sciences, social sciences, math and statistics. They will learn holistic resource management approaches that emphasize the interconnectedness of humans and the environment. In addition, students will develop a toolbox of resource management skills such as communication, collaboration, analysis, assessment and planning. They will explore the conservation and management of key resources which include fish and wildlife, land and water resources, and a wide range of ecosystems from forests to rangelands. A disciplinary depth in a focused area is developed through a required specialization option. Students may choose from a number of pre-approved specialization options, or create an individualized (student designed) specialization option.

The Natural Resources major is also available at the OSU-Cascades Campus in Bend, the OSU Agricultural Program at Eastern Oregon University, and through the OSU Extended Campus program. The Natural Resources major is an interdisciplinary program administered by the College of Forestry.

Only two courses used to complete the Natural Resources major requirements may be taken S/U. The Natural Resources Specialization Option will have a minimum GPA requirement of 2.25.

Curriculum Overview

The Bachelor of Science in Natural Resources curriculum consists of three blocks of study:

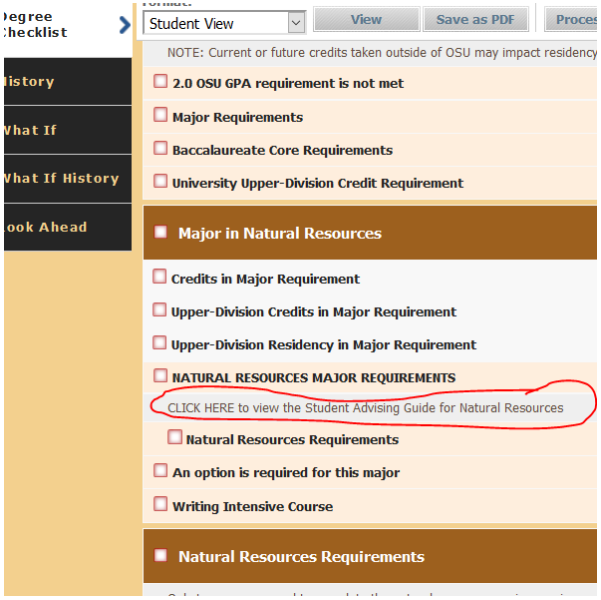
Baccalaureate Core - A standard set of courses that are required for all Oregon State University students. (This section is waived for Post-Baccalaureate Students and Associate of Arts Oregon Transfer degree students except for two “Synthesis” courses.)

Natural Resources Major requirements - The requirements cover interdisciplinary foundations of environmental problem solving, advanced communications, biophysical sciences, mathematics and statistics, resource management, social and political dimensions, and spatial analysis.

Natural Resources Specialization Option – A focused areas of study that will tailor your degree to your career interests and goals. Minimum GPA for this block is 2.25. Minimum number of credits in the option is 40 with at least 20 upper division credits required.

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 courses to requirements. You may notice that courses are listed as approved under several different requirements. The course can only be used once within the NR major but can be double counted with the Baccalaureate core. Be sure to let your advisor know where you want your courses to be applied. 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.

Minimum GPA met for the Specialization Option – All specialization options have a minimum GPA of 2.25. You must have a cumulative OSU GPA of at least 2.0 to graduate.

S/U Grading - The Natural Resources Program allows up to two total S/U graded courses in courses taken for the major. A maximum of 36 credits can be taken S/U in the Baccalaureate Core. You should familiarize yourself with this and other Academic Regulations.

Double Counting - Courses may be double counted between the Baccalaureate Core and the Natural Resource major requirements or specialization. Courses may NOT be double counted within the NR major. Courses are also allowed to be double counted in a minor if allowed by the department the offers the minor. Students can find a table of Baccalaureate Core classes and the requirements where they double count in the major on the Natural Resource Program website.

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 total 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**: Ecology Earth Science or Soil Science Climate Science Chemistry Spatial Analysis Specialization Options
Characterize natural resources and be able to quantify at least one of these resources.	**Coursework that Meets Outcome**: Earth or Soil Science Vegetation ID Animal ID Measurements (included in all NR Specialization Options) Spatial Analysis 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 Students may select option courses that meet this outcome
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:** Political Issues Resource Economics Natural Resource Decision Making (capstone course) Environmental Assessment and Planning Political Issues
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) Advanced Communications
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 Advanced Communications

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 they are unable to register for your first choices. The Advisor will approve the course plan and provide the term registration PIN#. During appointments you should be near your computer and have your MyDegrees audit accessible.

- **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.

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:

Autumn Granger
Snell 408
541-737-9135
Autumn.Granger@oregonstate.edu

McKenzie Huber
Snell 415
541-737-2873
Mckenzie.Huber@oregonstate.edu

Terina McLachlain
Snell 409
541-207-3580
Terina.McLachlain@oregonstate.edu

Beth Thompson
Snell 406
541-737-1179
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

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.

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 Baccalaureate Core requirements is found at:
http://catalog.oregonstate.edu/BCCSOCList.aSPx?category=Skills%20Courses&check=True

Baccalaureate Core Requirements

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

Transfer Credit Tool

Oregon Community College Baccalaureate Core Equivalencies

Double Counting Courses: Table of Baccalaureate Core classes suggested below and where they are used in the NR Curriculum

SKILL COURSES (Suggested course shown or see the list of Baccalaureate Core Classes above)		
Writing 1	3	**WR 121**
Writing 2	3	**WR 362, WR 327** can double count in NR major ADV COMMUNICATIONS **WR 327** also used in Conservation Law Enforcement
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 fulfilled by Natural Resources major mathematics requirement.**
PERSPECTIVES		
Physical Science w/lab	4	*Can be fulfilled by Earth/Soil 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*
Choose 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 major requirement but many courses are available. Check the Double Counting Courses table to see where these suggested courses are used in the NR Curriculum. Some of the suggested classes may only double count in certain options. **In the OSU Online Catalog and in this Advising Guide the Baccalaureate Core courses are designated with a "*". Writing intensive courses are designated with a "^".**		
Western Culture	3	*See the OSU Catalog for course selections.* SUGGESTED: **AEC 253** (Double counts in Conservation Law Enforcement or Human Dimensions or Policy & Management Options)
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). Used in an option: **ECON 201, ANTH 101**, **HDFS 201, PS 201**, **SOC 204**
Difference, Power and Discrimination	3	*See the OSU Catalog for course selections.* SUGGESTED: **FW 340, AG 301**, **GEO 309** (these will double count in Ethics & Phil. requirement). Used in an Option: **SOC 312, HDFS 201**
SYNTHESIS (Check the Double Counting Chart to see where the suggestions below can be used in the Natural Resource Major). Must be from different departments.		
Contemporary Global Issues	3	SUGGESTED: **AEC 351**, **AEC/ECON 352**, **ANTH 352**, ANTH 482, FE/FOR 456, **FES 365**, FES/NR 477, **FW 325**, FW 345, **GEO 308**, **GEOG 300**, **GEOG 331**, **PHL 440, PHL/REL 443**, **PS 455**, **SOC 480, SUS 350,** TRAL 357, **Z 349**
Science, Technology & Society	3	**FES 485** is required in the NR major. These classes will also double count for the STS **ANTH 481**, **BI 347**, **ENSC 479**, **ENT/HORT 300**, FES/NR 477 , **FW 350** , **GEO 306**, **GEO 307**, **GEOG 300**, **GEOG 340**, **HST 481**, NR 351, PS 476, **SOC 481**, **SOIL 395**, **SUS 304**, **WGSS 440**
WRITING INTENSIVE COURSE (WIC)^	3-4	BI 371, BI 373, **ENSC 479**, **FES 486**, **FW 435**, **FW 439,** FW 454 , **FW 497**, FOR 460, **GEOG 323**, **WR 462**

Natural Resources Major Requirements

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

INTERDISCIPLINARY FOUNDATIONS (10 credits)

INTERDISCIPLINARY FOUNDATIONS (10 credits) REQUIRED								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
FES 485	Consensus and Natural Resources	3	F,W	SU,W, SP	SP			Upper class standing.
NR 201	Managing NR for the Future	3	W	SU,F, W	F			
NR 455	Natural Resource Decision Making	4	W,SP	SU,F,S P	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.

ADVANCED COMMUNICATIONS (3-4 credits)

ADVANCED COMMUNICATION (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites/Restrictions	Restrictions /Advising Notes
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	SU,W		SP			
COMM 328	Non Verbal Communication	3	SU, F, W, SP	F,W, SP				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				
FW 489	Effective Communication in Fisheries and Wildlife Science	3		SP,W				Senior Standing. Restricted to F&W students but NR students may request an override.
NR 312	Critical Thinking for NR Challenges	3	SP					

TRAL 493	Environmental Interpretation	4	SP	SU,F, W,SP				CORV: Junior/Senior Standing only
WR 327*	Technical Writing	3	SU,F, W,SP	SU,F, W,SP			WR 121 C- or better	No freshman.
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	

BIOPHYSICAL SCIENCES (28 credits)

BIOLOGY (12 credits minimum) COMPLETION OF FULL 200 LEVEL SERIES IS PREFERRED AND REQUIRED FOR MOST SPECIALIZATIONS (See Note Below)								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
BI 101*	General Biology	4	SU, F		F			
and								
BI 102*	General Biology	4	SU, W	W	W			
and								
BI 103*	General Biology	4	SU,SP		SP			
OR								
BI 204*	Introduction to Biology	4		F, W				Restricted to Ecampus only
and								
BI 205*	Introduction to Biology	4		W,SP			CH 121 or higher D-	Restricted to Ecampus only
and								
BI 206*	Introduction to Biology	4		F,SP			CH 121 or higher D-	Restricted to Ecampus only
OR								
BI 211*	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.
and								
BI 212*	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.
and								
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.

NOTE: The 2XX level of biology is **REQUIRED** in the Ecological Restoration, Fish and Wildlife Conservation, Forest Ecosystems, Wildland Fire Ecology and Urban Forest Landscapes Specializations. It is a prerequisite for BI 370 General Ecology and often required for some federal jobs. It may be required in the Integrated Conservation Analysis or Individualized Specialty Option depending on the disciplinary focus.

CHEMISTRY (5 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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	

CLIMATE SCIENCE (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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	Advisors may need to request an override for you until the prerequisites are updated in the system. Talk to your advisor.
SUS 103*	Intro to Climate Change	4	F,W,	SU,F,	SP			

EARTH OR SOIL SCIENCE (4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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.	
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				
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. Chose from one ot the two below,
and									
OR	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	
NOTE: Students should choose either an Earth Science or Soil Science class that best pairs with their chosen area of specialization. These courses may be required prerequisites in some options. **Earth Science**: NR Education if pursuing teacher certification, Landscape Analysis **Soil Science:** Ecological Restoration, Fish and Wildlife Conservation preferred but not necessarily required, Forest Ecosystems, Urban Forest Landscapes, Wildland Fire Ecology **Either:** Conservation Law Enforcement, Human Dimensions, Policy and Management, Integrated Conservation Analysis (could be either depending on the area of disciplinary depth that is pursued).									

ECOLOGY (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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 341	Forest Ecology	3	F	F, SP	F		DSC sections require one year biology completed.	

MATHEMATICS AND STATISTICS (8 credits)

MATHEMATICS (4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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%.	

STATISTICS (4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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.
Note: Students may also take MTH243 at an Oregon Community College through the Degree Partnership Program. http://partnerships.oregonstate.edu/								

RESOURCE MANAGEMENT (23-31 credits)

ANIMAL ID (2-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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	4		F			BI 211/212/213 or BI 204/205/206 with minimum grade of C-.	
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.

ENVIRONMENTAL ASSESSMENT AND PLANNING (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP			
FW 462	Ecosystems Services	3		W,SP			BI 370 or equivalent recommended.	
GEOG 250*	Land Use Planning for Sustainable Communities	3	SP	W				
GEOG 450	Land Use in the American West	3						Not currently scheduled.
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 452	Sustainable Site Planning	3	SP	W			GEOG 205 Recommended.	
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.	

FISHERIES AND MARINE SCIENCES (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
BI 150	Introduction to Marine Biology	3	SP					
FW 302	Biology of Marine Mammals	4	SU (HMSC)	F,SP			One year of introductory biology is mandatory.	Taught at Hatfield Marine Science Center and Ecampus
BI 347*	Oceans in Peril	3	W	F			BI 101 or BI 102 or BI 211 or BI 213 or BI 204 or BI 150. C- minimum	No Freshman.
BI 351	Marine Ecology	3	W	F			BI 211, BI 212, BI 213 or BI204, BI 205, BI 206 (all with C- minimum)	
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 323	Management Principles of Pacific Salmon in Northwest	3		SU, F, W, SP	W			
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 454^	Fishery Biology	4	F	W			FW 315 and FW 320	
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
OC 201*	Oceanography	4	F, W	F,SP				
OC 332	Coastal Oceanography	3	SU, W					SU= Required four hour field trip. W= No Freshman

FORESTRY (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
FE/FOR 456*	International Forestry	3	SP				Introductory biology recommended.	No Freshman or Sophomore
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.	
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			
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.	
FOR 441	Silviculture Principles	4	SP				(FES 240 or FOR 240) AND (FES 141 or FES 241) with C minimum in all.	

LAND AND WATER (3-5 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
FE 430	Watershed Processes	4	F	W				Junior/Senior Standing.
FE 434	Forest Watershed Management	4	F				(CH 121 or CH201 or CH231) and (SOIL 205 or CSS 305 or CSS 205) and (MTH 241 or MTH 251). All with C minimum grade.	Limited to some majors. May need instructor permission to get in class. Lecture and lab.
FW 326	Integrated Watershed Management	3		F,W, SP			FW 251 recommended	
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"
RNG 355	Desert Watershed Management	4	F	F,W				
RNG 455	Riparian Ecohydrology and Management	4	SP	SU	F		Recommend RNG 355	
SOIL 366	Ecosystems of Wildland Soils	3		W	SP		SOIL 205 or CSS 205 or CS 305	
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)	
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	

RANGE (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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			
FOR 346	Topics in Wildland Fire	3	SP	SP,W			Recommend coursework in forest biology or ecology such as FES 240 or FES 341.	
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		

VEGETATION ID (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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		

WILDLIFE MANAGEMENT (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F, W,SP	F			
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 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.	
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 458	Mammal Conservation and Management	4	SP	F, W			Recommend 9 credits of Upper Div Biological Sciences	
FW 481	Wildlife Ecology	4	F	SU,SP	W		BI 370 or BI 371	No Freshman or Sophomore
Z 350	Animal Behavior	3	W	SP			(BI 211 and BI 212 and BI 213) or (BI 204 and BI 205 and BI 206), C- minimum grade in all.	

SOCIAL AND POLITICAL DIMENSIONS (15-20 credits)

ETHICS AND PHILOSOPHY (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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.	
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	SP					
PHL 440*	Environmental Ethics	3	SP	SU				
PHL/REL 443*	World Views and Environmental Values	3	SU, F, W, SP	SU, F, W, SP				Sophomore standing

NATURAL RESOURCE POLICY (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
AEC 432	Environmental Law	4	SP	SP				
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.
FW 415	Fish and Wildlife Law and Policy	3		W			Recommend PS 201 or other political science intro course.	
FW 422	Introduction to Ocean Law	3		F				
PS 473	U.S. Energy Policy	4	SP	W				
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				

POLITICAL ISSUES (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
ENT 300 / HORT330*	Plagues, Pests and Politics	3	SP	SU,F				
FOR 462	Natural Resource Policy and Law	3	W					Junior/Senior standing.
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
NR 351*	When Science Escapes the Lab	3	SP					
PS 455*	The Politics of Climate Change	4	SP	F, W				

PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
PS 476*	Science and Politics	4	SP	W, SP				
PS 477	International Environmental Politics and Policy	4	W	SU, F, W,SP				
TRAL 352	Wilderness Management	3		SU, F, W,SP				

RESOURCE ECONOMICS (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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.

SOCIAL ISSUES (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions /Advising Notes
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
FW 325*	Global Crises in Resource Ecology	3		SU,F, W,SP				
GEOG 300*	Sustainability for the Common Good	3	SU, F, W,SP	SU,F, W,SP				Junior/Senior standfing.
GEOG 240*	Climate Change, Water and Society	3	F					
GEOG 431	Global Resource Development	3						Not currently scheduled.
NR 351*	When Science Escapes the Lab	3	SP					
SOC 381	Social Dimensions of Sustainability	4		F, SP			SOC 204	
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
SUS 420	Social Dimensions of Sustainability	3		W	W			
TRAL 251	Recreation Resource Management	4	F	W				

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					
WGSS 440*	Women and Natural Resources	3	SP	F, W,				

SPATIAL ANALYSIS (3-4 credits)

SPATIAL ANALYSIS (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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			

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. Students may pursue any specialization but some courses may only be offered on certain campuses or online. Students should plan their program of study with their academic advisor.

Area of Specialization	Campus Availability	Description
Conservation Law Enforcement	*Corvallis, Ecampus*	Students will be prepared to enter careers in Conservation Law Enforcement with an understanding of the criminal justice system, environmental law and policy, human dimensions and sustainable resource management.
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. This option requires that you have taken BI370 Ecology and therefore you must have taken the BI2XX series at OSU or a transfer course that is articulated as BI LD2.
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. This option requires that you have taken BI370 Ecology and therefore you must have taken the BI2XX series at OSU or a transfer course that is articulated as BI LD2. Students should also take BI 370 General Ecology at OSU or an equivalent.
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.

		This option requires that you have taken BI370 Ecology and therefore you must have taken the BI2XX series at OSU or a transfer course that is articulated as BI LD2. 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 pursuing an ecological disciplinary focus would be best served by taking the 200 level of biology or a transfer course equivalent to BI LD2 and then BI370 General Ecology.
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. Students in this option will need to take MTH 112 Elementary Functions for their mathematics requirement. 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.
Natural Resource Education	*Corvallis, Ecampus*	This option will prepare students for careers as natural resource educators. Students may choose to focus on teaching in informal settings such as interpretive centers, aquariums, museums and parks or pursue a career in formal education in a K-12 classroom. 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.
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, 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.

		Students in this option should take MTH 112 Elementary Functions for the NR mathematics requirement, Soil Science for the Earth/Soil Science requirement, the 2XX level of biology for Biology requirement or courses that transfer of BI LD2, and BI 370 General Ecology for the Ecology requirement or an equivalent.
Individualized Specialty Option	*All campuses*	The Individualized Specialty Option (ISO) 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. Students in this option may need to take the 200 level of biology, BI 370 General Ecology and additional chemistry or math depending on their chosen program of study. They should work with their advisor and declare the ISO early so that they are taking the appropriate classes.

Conservation Law Enforcement [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (2-3 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
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 328	Wildlife Capture and Immobilization	2	SU,W	F				CORV: SU- Taught in one weekend. Winter - Hybrid 5 weeks class. DSC: full term

FOUNDATIONAL COURSES (16 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
COMM 318	Advanced Interpersonal Communication	3	SP	SU	W		COMM 218	The prerequisite of COMM 218 can be taken for the Speech Requirement in Bacc Core.
OR								
COMM 326	Intercultural Communication	3	SU,W		SP			
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F,W, SP	F			
SOC 241	Introduction to Crime and Justice	3	F	SU,W, SP				
TRAL 251	Recreation Resource Management	4	F	W				
WR 327*	Technical Writing	3	SU,F, W,SP	SU,F, W,SP			WR 121 C- or better	No freshman.
OR 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.

RESOURCE MANAGEMENT (6-9 credits) CHOOSE TWO

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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 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 458	Mammal Conservation and Management	4	SP	F, W			Recommend 9 credits of Upper Div Biological Sciences	
RNG 341	Rangeland Ecology and Management	3	F, W,,SP	SU,F,W, SP	W	F		
TRAL 357*	Parks and Protected Areas Management	3	F					
OR TRAL 352	Wilderness Management	3		SU, F, W,SP				

HUMAN DIMENSIONS (3 -4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
FW 340*	Multicultural Perspectives in Natural Resources	3	SP	SU, F, W, SP				
FW 439^	Human Dimensions in Fisheries and Wildlife Management	3		F				
HDFS 201*	Contemporary Families in the U.S.	3	SU,F, W,SP	SU,F, W,SP	F,W			CORV sections are hybrid.
HDFS 444	Family Violence and Neglect	4	W,SP	SU, F, W,SP	W			No freshman or sophomore. Restricted to HDFS students but NR students may do an online override request and explain that they are in the CLE specialization for NR.
PSY 360	Social Psychology	4	F, W, SP	SU,F, W,SP	W		PSY 201 and PSY 202	CORV: No Freshman.
SOC 312*	Sociology of the Family	4		SU,F, W,SP			SOC 204 or SOC 205 or SOC 206	
SOC 381	Social Dimensions of Sustainability	4		F, SP			SOC 204	
SOC 441	Criminology and Penology	4		SU			SOC 204	
SOC 448	Law and Society	4	SP					Offered alternating years.
SUS 420	Social Dimensions of Sustainability	3		W	W			
FISHERIES, WILDLIFE AND ENVIRONMENTAL LAW (3 - 4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
AEC 253*	Environmental Law, Policy and Economics	4	W	SU,F,W				
AEC 432	Environmental Law	4	SP	SP				
FOR 462	Natural Resource Policy and Law	3	W					Junior/Senior standing.
FW 341	Fish and Wildlife Law Enforcement	2	F					CORV: Five week class in the 2nd half of term.
FW 415	Fish and Wildlife Law and Policy	3		W			Recommend PS 201 or other political science intro course.	
FW 422	Introduction to Ocean Law	3		F				

ELECTIVES (11 credits minimum)

Students will choose a minimum of 11 credits of appropriate coursework approved by an advisor from related fields such as criminal justice, fish and wildlife, forestry, recreation, anthropology, sociology, psychology and natural resources.

Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements as approved by petition.

Option Code: 787 **Total Credits** = 40-47

Ecological Restoration [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (2-3 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
BI 375	Field Methods in Ecological Restoration	4			F		(BI 211 and BI 212 and BI 213) or (BI 204 and BI 205 and BI 206) all with C- or better	Taught in Bend in summer for 10 days prior to the start of fall term. Credits count toward fall term. Application Required. This is a field-based course with multiple nights camping. Students responsible for some aspects of personal food costs, camping gear, and weekend lodging (OSU-Cascades Residence Hall is available). CORV and DSC students will need an override to register.
BOT 440	Field Methods in Plant Ecology	4		SU,SP			Recommend an ecology course and statistics.	
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.

ECOLOGICAL RESTORATION FOUNDATIONS (Choose 22-24 credits)

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
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			
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	F		Recommended RNG 355	
GEOG 450	Land Use in the American West	3						Not currently scheduled.
OR 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.
OR GEOG 452	Sustainable Site Planning	3	SP	W			GEOG 205 Recommended.	
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 (3-4 credits) CHOOSE ONE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
FES/HORT 350	Urban Forestry	3		F, W			Foundational Horticulture or Forestry courses recommended.	
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	SP					
PHL 440*	Environmental Ethics	3	SP	SU				
PHL/REL 443*	World Views and Environmental Values	3	SU, F, W, SP	SU, F, W, SP				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 12 credits minimum)								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
OR FOR 436	Wildland Fire Science and Management	4	F	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.
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 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, W			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	W		BI 370 or BI 371	No Freshman or Sophomore
NR 202	Natural Resource Problems and Solutions	3	SP	F				
RNG 341	Rangeland Ecology and Management	3	F, W,,SP	SU,F, W,SP	W	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	Offered even years.
Z 349 *	Biodiversity: Causes, Consequences and Conservation	3	F,W	F,SP, SU	SP			No freshman.
Z 423	Environmental Physiology	3	F	W	W		(BI 211 and BI 212 and BI 213) or (BI 204 and BI 205 and BI 206) AND (CH 123 or BH 233 and CH 263). All with C- or better.	
Note: Up to 6 credits of appropriate internships, projects, or study abroad may be used to fulfill credit requirements in the "Social and Ethical Considerations" or "Ecological and NR Electives" as approved by petition.								
Advising Notes: Students pursuing the Ecological Restoration Option should take a "Biology for Science majors" series. (BI 211212/213 or BI 204/205/206 or an equivalent series that transfer as BI LD2)								
Option code: 663 **Total Credits** = 40-44								

Fish and Wildlife Conservation [Available on Corvallis Campus, OSU-Cascades Campus and Ecampus]

MEASUREMENTS (3-4 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
BI 373^	Field Methods in Marine Ecology	3	SP				(BI 351 or BI 370) and (ST 351)	
BI 375	Field Methods in Ecological Restoration	4			F		(BI 211 and BI 212 and BI 213) or (BI 204 and BI 205 and BI 206) all with C- or better	Taught in Bend in summer for 10 days prior to the start of fall term. Credits count toward fall term. Application Required. This is a field-based course with multiple nights camping. Students responsible for some aspects of personal food costs, camping gear, and weekend lodging (OSU-Cascades Residence Hall is available). CORV and DSC students will need an override to register.
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 493	Field Methods for Marine Research	3	SU (HMSC)					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.	
RNG 441	Rangeland Analysis	4	F	SU		SP	Recommend ST 351.	CORV: Lecture and lab.

FOUNDATIONS OF CONSERVATION (Choose 12-14 credits)

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
FES 342	Forest Types of the Northwest	3		W	F			
OR FOR 111	Introduction to Forestry	3	F	SU,W				
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
OR 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				
FES/FW 452	Biodiversity Conservation in Managed Forests	3	SP	F			Recommend FES 240 or FES 341 or BI 370.	No freshman or sophomore.
OR FW 370	Conservation Genetics	4		F, W, SP	W		(BI 211 or BI 204) and (BI 212 or BI 205) and (BI 213 or BI 206)	
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F, W,SP	F			

FISH AND WILDLIFE BIOLOGY (9-12 credits) CHOOSE THREE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
FW 302	Biology of Marine Mammals	4	SU (HMSC)	F,SP			One year of introductory biology is mandatory.	Taught at Hatfield Marine Science Center and Ecampus
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 331	Ecology of Marine and Estuarine Birds	4	SU (HMSC)				One year of introductory biology recommended.	
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
Z 423	Environmental Physiology	3	F	W	W		(BI 211 and BI 212 and BI 213) or (BI 204 and BI 205 and BI 206) AND (CH 123 or BH 233 and CH 263). All with C- or better.	
Z 473	Herpetology	4		F			BI 211/212/213 or BI 204/205/206 with minimum grade of C-.	
HABITAT MANAGEMENT (6-9 credits) CHOOSE TWO								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP			
FW 326	Integrated Watershed Management	3		F,W, SP			FW 251 recommended	
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/OC 434	Estuarine Ecology	4		W				
FW 435^	Wildlife in Agricultural Ecosystems	3	W	F, W, SP			Recommend BI 370 and FW 251.	CORV = No Freshman or Sophomore
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.	
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	F		Recommended RNG 355	

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	
NATURAL RESOURCE POLICY (3 credits) CHOOSE ONE									
Course #		Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
FES 486^		Public Lands Policy and Management	3	F	SP			Sophomore standing recommended.	
FW 350*		Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
FW 415		Fish and Wildlife Law and Policy	3		W			Recommend PS 201 or other political science intro course.	
FW 439^		Human Dimensions in Fisheries and Wildlife Management	3		F				
FOR 462		Natural Resource Policy and Law	3	W					Junior/Senior standing.
ELECTIVES (6-8 credits) CHOOSE TWO									
BI 347*		Oceans in Peril	3	W	F			BI 101 or BI 102 or BI 211 or BI 213 or BI 204 or BI 150. C- minimum	No Freshman.
FW 421		Aquatic Biological Invasions	4	SU (HMSC)	W			Recommend one year of introductory biology.	Taught at Hatfield Marine Science Center or online through Ecampus
ENSC 479^		Environmental Case Studies	3	F	SU,W, SP	W		One year of college biology or chemistry recommended.	
FW 439^		Human Dimensions in Fisheries and Wildlife Management	3		F				
FW 323		Management Principles of Pacific Salmon in Northwest	3		SU, F, W, SP	W			
OR	FW 360*	Origins of Fish and Wildlife Management	3		F,W, SP			Two terms of coursework at OSU.	
OR	FW 470*	Ecology and History: Landscapes of Columbia Basin	3					HST 201, 202 and 203 or BI 370 or equiv	Not currently scheduled.
FW 366		Environmental Contaminants in F&W	3		W			(BI 204 or BI 211) and (BI 205 and BI 212)	Recommend FW 302, FW 320, FW 331, FW 475.
FW 419		The Natural History of Whales and Whaling	3	F (HMSC)	W			Some background in vertebrate ecology and evolution or genetics is recommended.	
FW 427		Principles of Wildlife Diseases	4		SU,SP				Junior standing or instructor approval
FW 431		Dynamics of Marine Biological Resources	4					BI 370 or BI 371 or equivalent course work.	Taught at Hatfield Marine Science center or online through Ecampus. Offered alternate years. Not currently scheduled.
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 462		Ecosystems Services	3		W,SP			BI 370 or equivalent recommended.	
FW 465		Marine Fisheries	4					FW 315 or equivalent	Offered Fall term in alternate years, Broadcast from HMSC to NASH. Not currently scheduled.

FW 467	Antarctic Science and Conservation	4					Upper-division standing: BI 370 or equivalent recommended.	Not currently scheduled.
FW 469	Methods in Physiology and Behavior of Marine Megafauna	3		F (Hybrid)				Mandatory 4 day attendance prior to the start of term at Hatfield Marine Science Center. Sept 14-17 2018. Weekly lectures broadcast through Zoom.
FW 471	Environmental Physicology of Fishes	4	W				FW 315 and BI 370	
FW 474	Early Life History Fishes	4					FW 315 or equivalent	Offered alternate years.
FW 475	Wildlife Behavior	4		F, W,			Recommended 9 credits of upper division biology.	
FW 476	Fish Physiology	4		SP			FW 315	
FW 497^	Aquaculture	3		F			Recommended 9 credits of upper division biology.	
FW 498	Aquaculture Laboratory	3	SU (HMSC)				Recommended 9 credits of upper division biology.	Taught at Hatfield Marine Science Center.
NR 202	Natural Resource Problems and Solutions	3	SP	F				
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	
Z 349 *	Biodiversity: Causes, Consequences and Conservation	3	F,W	F,SP, SU	SP			No freshman.
Z 350	Animal Behavior	3	W	SP			(BI 211 and BI 212 and BI 213) or (BI 204 and BI 205 and BI 206), C- minimum grade in all.	
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 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.
Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements as approved by petition.								
Advising Notes: Students pursuing the Fish & Wildlife Conservation Option should take a "Biology for Science majors" series. (BI 211212/213 or BI 204/205/206 or an equivalent series that transfer as BI LD2).								
Option Code: 672 **Total Credits** = 40 minimum								

Forest Ecosystems [Available on Corvallis Campus only]

MEASUREMENTS (4-5 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
BI 375	Field Methods in Ecological Restoration	4			F		(BI 211 and BI 212 and BI 213) or (BI 204 and BI 205 and BI 206) all with C- or better	Taught in Bend in summer for 10 days prior to the start of fall term. Credits count toward fall term. Application Required. This is a field-based course with multiple nights camping. Students responsible for some aspects of personal food costs, camping gear, and weekend lodging (OSU-Cascades Residence Hall is available). CORV and DSC students will need an override to register.
BOT 440	Field Methods in Plant Ecology	4		SU,SP			Recommend an ecology course and statistics.	
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

ECOLOGICAL FOUNDATIONS (23 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
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 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.	

ECOLOGY BREADTH (Choose at least 6-8 credits)

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
BOT 321	Plant Systematics	4	SP				Recommend BI 213.	
OR BOT 341	Plant Ecology	4	SP	F,SP			BOT 321 and BI 213 recommended.	
BOT 425	Flora of the Pacific Northwest	3	SP				Recommend BOT 321 or equivalent.	
FE 434	Forest Watershed Management	4	F				(CH 121 or CH201 or CH231) and (SOIL 205 or CSS 305 or CSS 205) and (MTH 241 or MTH 251). All with C minimum grade.	Limited to some majors. May need instructor permission to get in class. Lecture and lab.
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP			
FES/HORT/NR 477*	Agroforestry	3	W				Recommend Introductory Biology.	

FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F, W,SP	F			
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 451	Avian Conservation and Management	3		F, W			Recommend FW 311.	
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, W			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	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.	
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	F		Recommended RNG 355	
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	
Z 349 *	Biodiversity: Causes, Consequences and Conservation	3	F,W	F,SP, SU	SP			No freshman.
Z 473	Herpetology	4		F			BI 211/212/213 or BI 204/205/206 with minimum grade of C-.	

TECHNICAL ELECTIVES (8 credits) CHOOSE TWO

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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 NEW!	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.
FES 447	Arboriculture			SP			Recommend (FES 141 or FES 241 or HORT 226 or HORT 228) and (FOR 111 or HORT 112)	
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			
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.
OR ST 352	Introduction to Statistical Methods	4	SU, F, W, SP	SU,F, W,SP	SU, W		ST 351	
Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements in this option as approved by petition.								
Advising Notes: Students pursuing the Forest Ecosystems Option should take a "Biology for Science majors" series. (BI 211212/213 or BI 204/205/206 or an equivalent series that transfer as BI LD2). In the NR major requirements the student should take FES 240 Forest Biology for the "Forestry" requirements and FES 241 Dendrology for "Vegetation ID".								
Option Code: 673 **Total Credits** = 41-44								

Human Dimensions [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (4 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
FES 422	Research Methods in Social Science	4	W	F	SP		ST 201 or ST 351	

CONSENSUS AND COMMUNICATION (3 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
COMM 322	Small Group Problem Solving	3					Recommend COMM 218.	Not currently scheduled.
COMM 324	Communication in Organizations	3	F,SP		F			
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.
LEAD 342	Team and Organizational Leadership	3	SP	F,W, SP				
LEAD 443	Leadership through Conversations	3	F	F,SP				

PHILOSOPHY AND ETHICS OF THE ENVIRONMENT (6 CREDITS) CHOOSE TWO

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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	SU, F, W, SP	SU, F, W, SP				Sophomore standing
PHL 470	Philosophy of Science	3	W				Recommend 6 credits of upper-division philosophy and sophomore standing.	Not offered every year.
NR 312	Critical Thinking for NR Challenges	3	SP					
SOC 381	Social Dimensions of Sustainability	4		F, SP			SOC 204	

POLICY AND ECONOMICS (3-4 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
AEC 250*	Introduction to Environmental Economics and Policy	3	W (hybrid)	SU,F, W,SP			MTH 111 or equivalent is recommended.	
AEC 253*	Environmental Law, Policy and Economics	4	W	SU,F, W				
AEC 351*	Natural Resources Economics & Policy	3	F	F, SP			AEC 250 or AREC 250 or ECON 201	
AEC/ECON 352*	Environmental Economics and Policy	3	F, SP	SU, F, SP	W		AEC 250 or ECON 201	.
AEC 432	Environmental Law	4	SP	SP				
ECON 201*	Introduction Microeconomics	4	SU,F	SU,F,S P	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				
MANAGEMENT ISSUES (9-11 credits) CHOOSE THREE								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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 454~~	~~Managing at the Wildland-Urban Interface~~	~~3~~	F	W			FOR 111 (not required of DSC students)	NO LONGER OFFERED.
FES 486^	Public Lands Policy and Management	3	F	SP			Sophomore standing recommended.	
FES/HORT 455	Urban Forest Planning, Policy and Management	4		F				
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	
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
FW 439^	Human Dimensions in Fisheries and Wildlife Management	3		F				
FW 462	Ecosystems Services	3		W,SP			BI 370 or equivalent recommended.	
GEOG 250*	Land Use Planning for Sustainable Communities	3	SP	W				
GEOG 430	Resilience-Based Natural Resource Management	3						Not currently scheduled.
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 452	Sustainable Site Planning	3	SP	W			GEOG 205 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				
TRAL 354	Communities, Natural Areas and Tourism	3	W					
SOCIAL ISSUES (15 credits)								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
Required Background course:								
SOC 204*	Introduction to Sociology	3	SU,F, W,SP	SU,F, W,SP	W			
Select 12 credits from the following:								
ANTH 101*	Introduction to Anthropology	3	F, W, SP	SU, F, W, 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				
GEOG 300*	Sustainability for the Common Good	3	SU, F, W,SP	SU,F, W,SP				Junior/Senior standfing.
GEOG 331*	Population, Consumption and Environment	3	F (Hybrid)	W				
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					
SOC 381	Social Dimensions of Sustainability	4		F, 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
SUS 350*	Sustainable Communities	4	F, W, SP	SU, F, W,SP	F			
SUS 420	Social Dimensions of Sustainability	3		W	W			
WGSS 440*	Women and Natural Resources	3	SP	F, W,				
Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements in this option as approved by petition.								
Option Code: 675 **Total Credits** = 40-44								

Integrated Conservation Analysis [Available on Corvallis Campus]

MEASUREMENTS (3 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
NR 325	Scientific Methods for Analyzing Natural Resource Problems	3	SP				MTH111 (C- or better) or score of 060 in ALEKS Math Placement test.	

INTEGRATED ANALYSIS (9 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
NR 202	Natural Resource Problems and Solutions	3	SP	F				
NR 312	Critical Thinking for NR Challenges	3	SP					
NR 351*	When Science Escapes the Lab	3	SP					

DISCIPLINARY FOCUS (28 credits minimum)

Student will select an area of study for disciplinary focus from Policy, Social Science/Human Dimensions, or an Ecological Discipline. The student 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.

Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements in this option as approved by petition.

Option Code: 735 **Total Credits** = 40 minimum

Landscape Analysis [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (4 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
FE 208	Forest Surveying	4	F	SP			MTH 112 or 241 or 251 or 252 with C or better.	

GEOGRAPHIC INFORMATION SCIENCE (16 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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	
OR 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.

GEOGRAPHIC INFORMATION SCIENCE ELECTIVES (6-8 credits) CHOOSE TWO

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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					GEOG 201 or GEO 301	Not currently scheduled.

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).	
NATURAL RESOURCE ELECTIVES (12-14 credits minimum)								
Choose a minimum of 12 - 14 credits in a disciplinary area related to GIScience to reach a minimum of 40 credits in the option. Student will be required to submit an academic plan for completion of the option which will be approved by the Natural Resources Program Director.								
Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements in this option as approved by petition.								
Advising Notes: Students pursuing the Landscape Analysis option should take MTH112 Elementary Functions or an equivalent.								
Option Code: 689 **Total Credits** = 40 minimum								

Natural Resource Education [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (4 credits)

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
FES 430	Forest as Classroom	4		F,SP				

NATURAL RESOURCE BASE (10 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
FOR 111	Introduction to Forestry	3	F	SU,W				
OR FES 342	Forest Types of the Northwest	3		W	F			
FW 251	Principles of Fish and Wildlife Conservation	3	W	SU,F, W,SP	F			
TRAL 493	Environmental Interpretation	4	SP	SU, F, W,SP				CORV: Junior/Senior Standing only

EDUCATION AND PROGRAM DEVELOPMENT (12 credits)

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
ED 216*	Purpose, Structure and Function of Ed in a Democracy	3	SU, F, W, SP	SU, SP				
OR 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				
ED 496	Technology for Educators	3		W				
SED 413	Inquiry in Science and Science Education	3	W	SP				

ELECTIVES (minimum of 14 credits)

Students may choose a minimum of 14 credits from either or both categories below. Students may choose to focus on teaching in informal education settings or formal classroom instruction/licensure in K-12 schools. Corvallis campus students may be interested in the Education Double Degree program at OSU and Content Mastery in biology or integrated science. Students in the double degree program should work with their education advisor as well as their NR advisor to plan an appropriate plan of study to meet their goals.

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
EDUCATION ELECTIVES (Double count with Education Double degree and preparation for teaching in a K-12 classroom)								
ED 216*	Purpose, Structure and Function of Ed in a Democracy	3	SU, F, W, SP	SU, SP				
OR ED 219	Civil Rights and Multicultural Issues in Education	3	SU, F, W, SP	SU, F				
ED 309	Field Practicum	variable	F,W,SP	SP				Requires Education Department approval.
ED 411	Educational Psychology, Learning and Development	3		F				
ED 412	Learning Styles and needs in adolescence	2	F,SP					Requires Ed Double Degree or Ed minor.
SED 406	Projects	6-Jan	SP					Requires Education Department approval.
SED 412	Technology Foundations for Teaching Math and Science	3	SP					

SED 435	Communicating Ocean Sciences to Informal audiences	3	F	SU				
NATURAL RESOURCE ELECTIVES (Background courses for informal educators)								
BI 150	Introduction to Marine Biology	3	SP					
BI 301*	Human Impacts on Ecosystems	3	W					No freshman.
BI 347*	Oceans in Peril	3	W	F			BI 101 or BI 102 or BI 211 or BI 213 or BI 204 or BI 150. C- minimum	No Freshman.
BI 348	Human Ecology	3						Not currently scheduled.
FES 355	Management for Multiple Resource Values	3		F, SP				
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 302	Biology of Marine Mammals	4	SU (HMSC)	F,SP			One year of introductory biology is mandatory.	Taught at Hatfield Marine Science Center and Ecampus
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 458	Mammal Conservation and Management	4	SP	F, W			Recommend 9 credits of Upper Div Biological Sciences	
FW 464	Marine Conservation Biology	3					BI 370 and/or equivalent	
GEO 202*	Earth Systems Science	4	W					
GEO 203*	Evolution of Planet Earth	4	SP					
GEO 307*	National Park Geology and Preservation	3	F	SU, SP				
RNG 341	Rangeland Ecology and Management	3	F, W,,SP	SU,F, W,SP	W	F		
RNG 421	Wildland Restoration and Ecology	4	F	F		SP	Coursework in soils and ecology.	
RNG 455	Riparian Ecohydrology and Management	4	SP	SU	F		Recommended RNG 355	
TRAL 251	Recreation Resource Management	4	F	W				
TRAL 351	Outdoor Recreation on Public Lands	4	W				FES/TRAL 251	No Freshman/Sophomore
TRAL 352	Wilderness Management	3		SU, F, W,SP				
OR TRAL 357*	Parks and Protected Areas Management	3	F					
Z 349 *	Biodiversity: Causes, Consequences and Conservation	3	F,W	F,SP, SU	SP			No freshman.
Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill requirements in this option as approved by petition.								
Option Code: 679 **Total Credits:** 40								

Policy and Management [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (4 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
FES 422	Research Methods in Social Science	4	W	F	SP		ST 201 or ST 351	
PS 300^	Research Methods	4	F,W	SU,				

SOCIAL SCIENCE FOUNDATION (7-8 credits)

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
Required Background Course:								
PS 201*	Introduction to United States Government and Politics	4	SU, F, W,SP	SU,F, W,SP	F			
Choose one of the following:								
AEC 250*	Introduction to Environmental Economics and Policy	3	W (hybrid)	SU,F, W,SP			MTH 111 or equivalent is recommended.	
AEC 253*	Environmental Law, Policy and Economics	4	W	SU,F, W				
ECON 201*	Introduction Microeconomics	4	SU,F	SU,F,S P	F			.
SOC 204*	Introduction to Sociology	3	SU,F, W,SP	SU,F, W,SP	W			

SOCIAL SCIENCE AND NATURAL RESOURCES (6-8 credits) CHOOSE TWO

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
AG 301*	Ecosystems Science of the PNW Indians	3	F, W	SU,F, W, SP				
ANTH 477	Ecological Anthropology	3		F			Recommend 3 credits social science and Junior/Senior standing	
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 240*	Climate Change, Water and Society	3	F					
GEOG 250*	Land Use Planning for Sustainable Communities	3	SP	W				
GEOG 300*	Sustainability for the Common Good	3	SU, F, W,SP	SU,F, W,SP				Junior/Senior standfing.
GEOG 350*	Geography of Natural Hazards	3	SP	F				
GEOG 430	Resilience-Based Natural Resource Management	3						Not currently scheduled.
GEOG 450	Land Use in the American West	3						Not currently scheduled.
OR 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.
OR GEOG 452	Sustainable Site Planning	3	SP	W			GEOG 205 Recommended.	

NR 202	Natural Resource Problems and Solutions	3	SP	F				
NR 312	Critical Thinking for NR Challenges	3	SP					
NR 351*	When Science Escapes the Lab	3	SP					
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 RESOURCE POLICY (12-13 credits) CHOOSE FROM AT LEAST TWO DEPARTMENTS								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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	
AEC 353	Introduction to Coastal and Marine Resource Economics	3					MTH 111 and AEC 250 or ECON 201. All with C- or above.	Not currently scheduled.
AEC 432	Environmental Law	4	SP	SP				
AEC 452	Marine Economics	3					AEC 351 or AEC 352 or AREC 352 or AREC 352	Not currently scheduled.
AEC 453	Conservation of Private Land	3						Not currently scheduled.
FES 365*	Issues in Natural Resource Conservation	3	W~	SU,W	SP			W~= International Sites
FES 486^	Public Lands Policy and Management	3	F	SP			Sophomore standing recommended.	
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 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.
FW 350*	Endangered Species, Society and Sustainability	3	F, W~	SU,F, W,SP	W			W~ = International Sites
FW 415	Fish and Wildlife Law and Policy	3		W			Recommend PS 201 or other political science intro course.	
FW 422	Introduction to Ocean Law	3		F				
PS 455*	The Politics of Climate Change	4	SP	F, W				
PS 461	Environmental Political Theory	4						Not currently scheduled.
PS 470	Global Food Politics and Policy	4		SU,W				
PS 473	U.S. Energy Policy	4	SP	W				
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				
PS 478	Renewable Energy Policy	4	F	SP				

NATURAL RESOURCE MANAGEMENT (Choose 11 credits minimum)								
Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
BOT 440	Field Methods in Plant Ecology	4		SU,SP			Recommend an ecology course and statistics.	
ENSC 479^	Environmental Case Studies	3	F	SU,W, SP	W		One year of college biology or chemistry recommended.	
FES 440	Wildland Fire Ecology	3	W	W,SP	SP		Coursework in ecology and Natural Resource management.	Recommended for juniors or seniors.
FES/HORT 455	Urban Forest Planning, Policy and Management	4		F				
FES/FW 445	Ecological Restoration	4	SP	SU,F, SP	SP			
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				
FW 303	Survey of Geographic Information Systems	3		SU,F, W,SP				NOT a lab/skills class.
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 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.	
GEOG 201*	Foundations of Geospatial Science and GIS	4	F,W	SU,F,S P				
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"
RNG 455	Riparian Ecohydrology and Management	4	SP	SU	F		Recommended RNG 355	
RNG 490	Rangeland Management and Planning	4	SP	W		W		
TRAL 352	Wilderness Management	3		SU, F, W,SP				
Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill requirements in the Social Science & NR, NR Policy or NR Management blocks as approved by petition.								
Option Code: 791 **Total Credits =** 40 minimum								

Urban Forest Landscapes [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (4 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
BOT 440	Field Methods in Plant Ecology	4		SU,SP			Recommend an ecology course and statistics.	
GEOG 360	Geoscience I: Geographic Information Systems and Theory	4	F,SP	F, W	W			

URBAN FORESTRY FOUNDATIONS (25-26 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
BOT 341	Plant Ecology	4	SP	F,SP			BOT 321 and BI 213 recommended.	
OR BOT 350	Introductory Plant Pathology	4	F	F,W			BI 211/212/213 OR BI 204/205/206 NEW Prerequisites!	Prerequisite is enforced.
OR FES 412	Forest Entomology	3	SP				BI 204 or BI 211 or BI 212 or with C or higher and/or equivalent.	
OR BOT/FOR 413	Forest Pathology	3	F				BI 204 or BI 212 or BI 213 and/ or equivalent with C or better	
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			
FES/HORT 447	Arboriculture	4		SP				
FES/HORT 455	Urban Forest Planning, Policy and Management	4		F				
FW 462	Ecosystems Services	3		W,SP			BI 370 or equivalent recommended.	
HORT 315	Sustainable Landscapes: Maintenance, Conservation, Restore	4	W	SP				

SOCIAL/POLITICAL/COMMUNITY INTEGRATION (11-12 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
ANTH 481*	Natural Resources and Community Values	3		SU			Recommend 3 credits of social science.	
OR SOC 481*	Society and Natural Resources	4	W,SP	SU,F, W,SP			SOC 204	CORV = No freshman or sophomore
FOR 462	Natural Resource Policy and Law	3	W					Junior/Senior standing.
OR PS 475	Environmental Politics and Policy	4	F	SU,F, W,SP	SP			
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.
OR GEOG 452	Sustainable Site Planning	3	SP	W			GEOG 205 Recommended.	

Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements in this option as approved by petition.

Advising Notes: Students pursuing the Urban Forest Landscapes Option should take a "Biology for Science majors" series. (BI 211212/213 or BI 204/205/206 or an equivalent series that transfer as BI LD2)

Option Code: 685 **Total Credits** = 40 minimum

Wildland Fire Ecology [Available on Corvallis Campus and Ecampus]

MEASUREMENTS (3-4 credits) CHOOSE ONE

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/ Advising Notes
BOT 440	Field Methods in Plant Ecology	4		SU,SP			Recommend an ecology course and statistics.	
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 360	Geoscience I: Geographic Information Systems and Theory	4	F,SP	F, W	W			

FOUNDATIONS IN WILDLAND FIRE (14 credits) REQUIRED

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
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			
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. Course will be replaced with FOR 431. SEE ADVISOR.
FOR 431 NEW!	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				

ECOLOGICAL AND NATURAL RESOURCE ELECTIVES (Choose 22-23 credits)

Course #	Course Name	Credits	CORV	DSC	CASC	EOU	Prerequisites	Restrictions/Advising Notes
BOT 341	Plant Ecology	4	SP	F,SP			BOT 321 and BI 213 recommended.	
BOT/FOR 413	Forest Pathology	3	F				BI 204 or BI 212 or BI 213 and/ or equivalent with C or better	
BOT 414	Agrostology	4						Not currently scheduled.
BOT 425	Flora of the Pacific Northwest	3	SP				Recommend BOT 321 or equivalent.	
CROP 440	Weed Management	4	F	W,SP			One year biological science and one cousre in organic chemistry.	
FE 208	Forest Surveying	4	F	SP			MTH 112 or 241 or 251 or 252 with C or better.	
FE 434	Forest Watershed Management	4	F				(CH 121 or CH201 or CH231) and (SOIL 205 or CSS 305 or CSS 205) and (MTH 241 or MTH 251). All with C minimum grade.	Limited to some majors. May need instructor permission to get in class. Lecture and lab.
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 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.	
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 441		Silviculture Principles	4	SP				(FES 240 or FOR 240) AND (FES 141 or FES 241) with C minimum in all.	
FW 321		Applied Community and Ecosystem Ecology	3	SP	F, W, SP			FW 320. (May be taken concurrently)	CORV = No Freshman or Sophomore
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, W			Recommend 9 credits of Upper Div Biological Sciences	
FW 479		Wetlands and Riparian Ecology	3	SP	SU, F, W, SP			Recommend BI 370 or BI 371.	
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.	
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	
Note: Up to 6 credits of appropriate internships, projects or study abroad may be used to fulfill credit requirements in this option as approved by petition.									
Advising Notes: Students pursuing the Wildland Fire Ecology Option should check the prerequisites above carefully. Depending on course choices student may need to take a "Biology for Science majors" series. (BI 211212/213 or BI 204/205/206 or an equivalent series that transfer as BI LD2). Students in this option may also need to take MTH 112 Elementary Functions for the "Mathematics" requirement, Soil Science for the "Earth OR Soil Science" requirement, and BI 370 General Ecology for the "Ecology" requirement.									
Option Code: 687 **Total Credits** = 40 credits Minimum									

Individualized Specialty Option "ISO" (Student Designed)

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. This is often a good choice for students who have a significant amount of relevant transfer work or those who have a specific career goal that they are working toward.

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. The proposal is submitted to the Natural Resources Program Director for approval. This plan should be submitted at least 6 terms prior to the planned graduation term. Students should contact their assigned Academic Advisor for information on developing an Individualized Specialty Option.

Here are some examples of recent areas of specializations that students have designed:

Water Resource Management
Agroforestry
Sustainable Wilderness Recreation Management
Environmental Disaster Management
Food in Culture and Social Justice
Holistic Land Management
Marine Ecosystems and Human Impacts
International Resource Management
Rangeland Ecology and Management
Communication and Outreach for Natural Resource Management

Minimum of 40 credits with 20 credits upper division credits required. Available on all campuses.