Environmental Science Student Handbook

INTERDISCIPLINARY ARTS AND SCIENCES

INTRODUCTION

Welcome to the Program in Interdisciplinary Arts and Sciences (IAS). We are pleased that you are here and encourage you to participate in every aspect of the program and the UWB campus. The Environmental Science Student Handbook is designed to disseminate general and program-specific information. Students are also strongly encouraged to regularly review other campus resources, including the UWB Catalog (see Current Students on the web) and the campus and departmental websites for the most complete and current information available.

IAS academic advisers are available by appointment (425-352-3530) or by e-mail (IASadvisers@uwb.edu) for academic counseling or for additional information as needed throughout the program. Students should use the general IASadvisers@uwb.edu e-mail rather than e-mailing a particular adviser directly. This will ensure the fastest possible response.

STUDENT/UWB CONTACT

UWB uses the University of Washington e-mail address to contact students. UW e-mail is accessed through the MyUW webpage: http://myuw.washington.edu/. **Those students who do not check their UW e-mail on a regular basis should have it forwarded to their home e-mail so they don't miss important notifications.**

STUDENT RESPONSIBILITIES

In addition to reading this handbook, students are responsible for actively tracking their progress through to graduation. This includes, but is not limited to:

- keeping track of your own progress and updating the major checklist on a quarterly basis (see last page of this handbook)
- making an appointment (425-352-5350) with an IAS adviser or e-mailing (IASadvisers@uwb.edu) if assistance or information is needed
- filing a graduation application three quarters in advance of graduation
- ensuring that you have the requisite academic background to successfully complete a course. The faculty encourages you to explore various areas of study within the program. However, if you question whether a course is an appropriate choice based on the course description/instructor website, please contact the professor for guidance before you register for it.
- completing requirements in a timely manner. Not all required courses are offered every quarter. Students should complete program-specific requirements first and leave their electives for the latter part of their program so that their graduation is not delayed.
- realistically planning a credit load against other obligations (work, family, etc.)
- checking your grades to make sure you have passed your classes or achieved the minimum grade to fulfill a requirement. It is your responsibility to ensure that you are registered for the correct courses and number of credits to meet your timeline for graduation. Please contact an IAS adviser if you need assistance.
- keeping up-to-date on program news, deadlines and changes by reading the IAS website on a regular basis at: http://www.uwb.edu/IAS.

REPEATABLE COURSES

The majority of courses in the IAS curriculum may be taken only once for credit. However, there are a few exceptions:

a. Special Topics: BIS 393 and BIS 493 may EACH be taken up to 15 credits on different topics.
b. "Topics" and "Issues" courses: the maximum number of credits (on different topics) varies, so click on the title of the course in the IAS Time Schedule of Classes and note the credit notation listed in the course catalog.
c. Variable credit: BES 398 Directed Study in Environmental Science and BES 498 Independent Research in Environmental Science may be taken for a total of 15 credits COMBINED, despite the notation in the web catalog!

CROSS-CAMPUS REGISTRATION AND RESIDENCY

In order to count toward the 90 credits required for the Interdisciplinary Studies major, courses taken at UW Seattle or UW Tacoma must be 300 or 400 level and will count toward the General Elective requirement only. Those students admitted with fewer than 90 credits need coursework beyond the 90 major credits to reach the minimum of 180 credits required for graduation. These students may take 100 or 200 level courses to complete the number of credits needed (in addition to the 90 major credits) to reach the 180 minimum. Interested students should contact an academic adviser to make sure their planned courses will count toward their degree.

Students may take up to 15 credits at a different campus in one academic year (Autumn-Summer quarters). Students admitted to UW Bothell as sophomores, juniors or seniors must complete a minimum of 15 credits at UW Bothell before they are eligible for cross-campus registration. Students may register for classes at another UW campus when the second registration period begins for Autumn, Winter and Spring Quarters. Students may register for Summer Quarter classes at another UW campus on their normal registration date.

NOTE: IAS advisers do not have in depth knowledge of the UW Seattle curriculum nor do they possess contact information for faculty/staff on that campus. If you have questions about individual courses at UW Seattle, please contact the instructor.

Students must also follow the Senior Residency requirement which requires completion of 45 of the last 60 credits at the home campus (UW Bothell).

STUDY ABROAD

Study abroad credits taken at another university (including the University of Washington, Seattle) will be placed in electives only. Please see an IAS adviser if you intend to pursue a study abroad program through another university to determine if these credits will fit into your degree requirements. The International Program & Exchanges office at UW Seattle is a good place to begin researching study abroad programs (http://www.ipe.washington.edu/).

SUMMER QUARTER COURSES

The IAS program is provided with a limited budget for summer quarter course offerings. Students can anticipate that both a morning and an evening time block will be available, and the courses will run under a full-term schedule. It is important to note that few courses will be offered so registering for a full-time schedule may be difficult. Students should not plan on completing specific program requirements during the summer as they may not be offered. Variable credit courses (directed study, undergraduate research, and senior thesis) are not offered during the summer.

INTERNSHIPS

Students interested in pursuing an Internship should visit http://www.uwb.edu/IAS/ba/internships.xhtml for application information and requirements. Questions should be sent to internship@uwb.edu. Internships are 5 credits and will count as elective credits only. Students must apply to take the internship course. Applications are generally due mid-way through the prior quarter. The Internship class is offered Winter, Spring and Summer Quarters.

GRADING

Satisfactory/Non-Satisfactory (S/NS) and Credit/No Credit (CR/NC) grades

Students may choose to take some courses with an S/NS grading option. Review the academic calendar deadlines for when this grading option must be declared. A numeric grade of 2.0 is required to receive an "S" grade. **S graded courses will not be applied toward program requirements, but will be counted toward electives only**.

CR/NC grades are attached to the course and cannot be selected by the student. CR/NC courses may be designated by the department as program requirements or electives.

Both S/NS grades and CR/NC grades have no effect on the cumulative gpa. Complete details on S/NS grades and CR/NC grades can be found in the UWB General Catalog.

Incompletes

A student who cannot complete a course is not automatically granted an Incomplete. University rules state, "An Incomplete is given only when the student has been in attendance and has done satisfactory work until within two weeks of the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control."

To obtain credit for the course, an undergraduate student must convert an Incomplete into a passing grade no later than the last day of the next quarter or the "I" converts to a 0.0. The student should never reregister for the course as a means of removing the Incomplete. Please note that an Incomplete taken at the end of spring quarter must be completed by the end of autumn quarter. Students who are granted an Incomplete should meet with the professor to discuss the work to be accomplished.

Withdrawals

It is the student's responsibility to be aware of drop and withdrawal deadlines. These deadlines can be found at http://www.uwb.edu/students/calendar/. Important dates to know:

- *1st week of the Quarter (No Fee Unrestricted Drop Period)* - Courses may be dropped without restriction from the first day of Registration Period I through the 7th calendar day of the quarter (Period III). No record of the dropped course(s) will be recorded on the transcript.
- *2nd week of the Quarter (Unrestricted Drop Period*) - This period is from the 8th calendar day of the quarter through the 14th calendar day of the quarter. Courses may be dropped without restriction during this period. No record of the dropped course(s) will be recorded on the transcript. There is a $20 Change of Registration Fee and a tuition forfeiture may be charged for all registration changes made on a single day during this period.
- *3rd-7th week of the Quarter (Late Drop Period)* - Each academic year (September through August) you may drop one (1) course after the 14th calendar day of a quarter, but no later than the end of the 7th week of the quarter. Once this "annual drop" is used, no additional drops will be permitted after the 14th calendar day until the next autumn quarter. A W grade and the week designation (W3 through W7) will follow the course

title on your academic transcript. There is a $20 Change of Registration Fee and a tuition forfeiture may be charged for all registration changes made on a single day during this period.

- *Withdrawing from the Quarter* – Students may withdraw from the quarter up to the last day of instruction. Please see this website for more information on withdrawing: http://www.uwb.edu/students/registration/withdrawing.xhtml.
- *Hardship Withdrawal Petition*- Students may petition for a hardship withdrawal if they are unable to complete the course in question due to a physical or mental debilitation or if unusual or extenuating circumstances prevented them from dropping by the drop deadline. Supporting documentation is generally required.

LOW SCHOLARSHIP

Keys to Maintaining Good Academic Standing

- Be aware that upper-division courses can be **more rigorous** than lower-division courses. Students sometimes find that their educational experience at UWB is more intense and time consuming than what they experienced at a community college or in lower division (100-200) level coursework.
- It is always wise to begin the program with **less than a full course load** if working 40 hours per week. Students should strive to find a balance between school, work and other obligations. Registering for too many courses in any given quarter may not be in a student's best interests if the student does not maintain good academic standing and is dropped for low scholarship.
- **Attend classes**. Class participation is a component of the IAS curriculum and will be reflected in the grade.
- **Keep up with reading/assignments**. Prepare for class and submit assignments on time. Once you get behind it is difficult to catch up. Many professors deduct points for late work.
- **Seek additional help** through the Writing Center if you are having difficulty with writing or the Quantitative Skills Center if you are having difficulty with math-related assignments.
- **Contact your instructor** if you do not understand an assignment or if you are having trouble understanding the material.

From the UW Bothell General Catalog:

> **"An undergraduate student is placed on academic probation at the end of any quarter (except for the first quarter at the University, when an academic warning is issued) in which his or her cumulative grade-point average falls below a 2.00. Once on probation, the student must attain at least a 2.50 for each succeeding quarter's work, until the cumulative grade-point average is raised to a 2.00, or the student is dropped for low scholarship."**

When a student is dropped for low scholarship, reinstatement IS NOT GUARANTEED.

Students are encouraged to seek academic advising and to look at options for reducing commitments outside of school and/or reducing academic course loads until they have earned a cumulative grade-point average of 2.00 or higher. Students on financial aid should speak to the Financial Aid Counselor for guidance on the impact of such changes to their funding.

DEGREE AUDIT REPORTING SYSTEM (DARS)

The Degree Audit Reporting System (DARS) produces a report reflecting academic progress toward completion of an undergraduate degree. The DARS report shows how your University of Washington courses, transfer courses, and courses in progress apply toward degree requirements.

The Degree Audit Report is an internal document. It should be used as a tool to assist you and your advisers in planning your future coursework. ***It is not an official certification of your academic record.*** If you have any questions regarding an audit or see anything you think is an error, please contact an IAS adviser by emailing IASadvisers@uwb.edu.

Degree Audits are available for most University of Washington majors and minors. The DARS system may be accessed through MyUW. Instructions on how to find and read the audit can be found here: http://www.washington.edu/students/reg/dars/.

TRANSFER CREDITS AND TRANSCRIPTS FROM OTHER INSTITUTIONS

Students who have taken courses at ANY institution of higher education, not including the University of Washington, before or during their time in the Interdisciplinary Arts & Sciences program, must have all transcripts submitted to the UWB Admissions Office. The IAS program advisors won't complete a graduation application until all transfer credits are documented. Students who do not have a graduation application on file may not take advantage of Graduating Senior Priority (GSP), which will enable them to register the first day of registration (see Graduation Application for details). Students may submit their transcripts to the following address:

University of Washington, Bothell
Office of Admissions, Campus Box 358500
18115 Campus Way NE
Bothell, WA 98011-8246

GRADUATION APPLICATION

It is the responsibility of the student to file the mandatory graduation application 3 quarters before the anticipated quarter of graduation. The graduation application is completed in an advising appointment with an IAS adviser and outlines the remaining credits/requirements for completion of the degree. All transfer credits must be documented BEFORE the IAS adviser will draft the graduation application.

To schedule an appointment to complete the graduation application, please call 425-352-5350.

Timelines for filing a graduation application:

Autumn quarter grads	**Apply the winter quarter prior**
Winter quarter grads	**Apply the spring quarter prior**
Spring quarter grades	**Apply the summer quarter prior**
Summer quarter grads	**Apply the autumn quarter prior**

Students who have a graduation application on file have graduating senior priority (GSP) which entitles them to register the first day of registration. GSP is limited to two quarters.

After filing the graduation application, it is the responsibility of the student to make sure that all requirements are met. IAS advisers are available to provide guidance and advice.

It is highly recommended that students meet with an IAS adviser BEFORE they register for their last quarter.

BACCALAUREATE AND FACULTY HONORS

In order to be eligible for Baccalaureate Honors (*cum laude, magna cum laude, summa cum laude*), students must earn 90 matriculated credits in residence at UW. Students who earn 70-89 matriculated credits in residence at UWB are eligible for Faculty Honors. The minimum grade requirement for each honor category changes from year to year. More information on Honors requirements can be found here: http://www.uwb.edu/students/graduation/honors.xhtml.

DIPLOMA & DEGREE

Students successfully completing the Interdisciplinary Studies major will earn a Bachelor of Arts from the University of Washington. The *diploma* will be mailed to the student's **permanent address** on file in the Registrar's Office approximately three to four months after completion of the degree requirements. The *degree* will be conferred and posted to the transcript shortly after the student has completed the degree requirements. Students needing proof of graduation should order an official transcript through the Student Affairs Office.

Bachelor of Science in Environmental Science – General Information and Resources

The Bachelor of Science in Environmental Science prepares students to address environmental challenges facing the world today. Environmental Science students in each of the major's two degree pathways (Conservation & Restoration Ecology and Earth System Science) develop the depth of scientific understanding, interdisciplinary perspectives, and creative problem-solving skills needed to design and bring about solutions to these problems at local, regional, and global scales.

Housed in the Interdisciplinary Arts and Sciences (IAS) program, the major combines focused study in the natural sciences with a broadly interdisciplinary curriculum, highlighting the ethical, historical, and policy dimensions of environmental issues. By participating in community-based projects ranging from wetlands restoration and conservation planning to analyses of regional air and water pollution, students gain practical experience and make a positive difference while they are still in school.

Conservation and Restoration Ecology (CRE) links the study of conserving and maintaining ecological systems and their elements with the recovery of damaged ecosystems. The combination of conservation and restoration creates a practical framework for managing natural resources and landscapes. Fundamental understandings of ecosystems components and processes are used to foster and sustain native species, ecological communities, and ecosystems.

Earth System Science (ESS) is an interdisciplinary field of study that examines the physical and chemical nature of the environment in various media (as well as atmosphere, rivers, lakes, oceans, soils, and lithosphere), their interaction with each other and with biological systems. ESS emphasizes the examination of human impacts on these complex environmental processes and the long term sustainability of living systems.

The CRE and ESS pathways are not transcripted.

BIS 300 INTERDISCIPLINARY INQUIRY (Program Core)

The purpose of Interdisciplinary Inquiry (BIS 300) is to introduce and orient students to upper-division work in the Program in Interdisciplinary Arts and Sciences (IAS). It encourages students to take intellectual risks with the goal of improving their abilities to read closely, write and think critically, communicate clearly and creatively, research effectively, and work collaboratively. Faculty teaching the core work closely with the staff in the Library, the Writing Center, and/or the Quantitative Skills Center, thus introducing students to the rich variety of resources and support services available to them at UWB. Recent BIS 300 faculty have taught it as a flexible course, one that responds to students with diverse levels of preparation. Students are encouraged to think about

how various types of knowledge are socially produced, how they as students can become active, creative, and self-critical producers of knowledge (in either academic or non-academic genres), and why the IAS program as a whole values interdisciplinary modes of inquiry. While individual sections of BIS 300 differ in their modes and emphases, they all encourage students to:

1. Understand and appreciate the interdisciplinary production of knowledge and the ways in which it underwrites different aspects of the IAS program;
2. Gain a critical understanding of the IAS program's diverse and interrelated (inter) disciplinary fields and methods of inquiry;
3. Become better critical thinkers and writers, ones who are capable of posing, answering, and reposing a variety of complex questions;
4. Become better researchers, ones who are able to use the resources at UWB and elsewhere in order to identify existing and complementary scholarly work while producing original knowledge through data gathering and interpretation;
5. Become better speakers, ones who are able to communicate clearly and engagingly about complicated topics, arguments, and issues;
6. Learn to work well collaboratively, as both learners and teachers.

Capstone Requirement

In order to graduate with a B.S. in Environmental Science, each student is required to complete a 10-credit capstone project. This allows each student to delve in depth into a key environmental science issue of concern globally, nationally, or locally.

The Restoration Ecology Capstone (BES 462, 463, and 464)
This capstone project consists of students of different academic backgrounds working together to complete an actual restoration project. Students learn about planning, design, installation, and monitoring of a restoration project using a team environment. The Capstone spans three academic quarters to complete this requirement: **Autumn Quarter (2 credits):** Students form assessment groups to review the proposals, plans, installations and other documentation of projects from previous years; **Winter Quarter (3 credits):** Student groups respond to requests for proposals (RFPs) submitted by firms or groups with viable restoration projects. The client and UW-REN faculty review the proposal. If the proposal is accepted, student groups prepare an implementation plan for the project; **Spring Quarter (5 credits):** Students oversee site prep and installation and are involved in adaptive management during this process. Preferably, the client provides most of the volunteer labor for installation. Students prepare a maintenance plan and train the client to ensure project success.

Please see Professor Warren Gold and read the following website:
http://courses.washington.edu/ehuf462/index.htm for more information.

Approved Independent Research
Environmental Science students can chose to complete the Restoration Ecology Capstone or can complete 10 credits of approved Independent Research to satisfy the capstone requirement.

AREAS OF KNOWLEDGE

The Bachelor of Science in Environmental Science requires a total of 25 credits each in the three Areas of Knowledge: Visual, Literary and Performing Arts (VLPA); Individuals and Societies (I&S); and Natural World (NW). **At least 10 credits in each of the three areas must be fulfilled by coursework with the BIS or BES prefix.**

Frequently Asked Questions

How can I find out if the class I am interested in is full?
Current section enrollment status for courses can be found through the Time Schedule webpage. Click on the applicable quarter, the appropriate department link and on the individual SLN number for each course. An enrollment summary table for all courses is also available on a link available at the top of the department course time schedule webpage.

How can I get into a course that is full?
If a course is full, monitor the web for current enrollment information. Enrollment numbers may fluctuate throughout the registration period. Instructors may grant permission for a student to register for a class that is full by asking the IAS office to issue an entry code. To obtain an entry code from the IAS office, written permission from the instructor is required.

What does "Prerequisites (cancellation in effect)" mean? Does it mean the class is cancelled?
It simply means that the system will screen for prerequisites. If the student has not taken the prerequisite(s), the system will not allow her to register for the course. If the student believes she has adequate preparation to succeed in the course, she should contact the professor.

I have an uneven number of credits needed to complete my degree due to my transfer credit. How can I take care of this?
Students may choose to take any available two (2) credit courses or may speak to a faculty member about arranging an independent study (1-5 credits). Or, courses may be taken that exceed the number of actual credits needed to graduate if the first two options are not available. Students may also look at credit courses from other departments as options to fulfill elective requirements, if needed.

What is independent study?
Independent study (variable credit) allows a student to work on a research paper under faculty guidance for credit. Students who are interested must have a topic in mind before approaching a professor to ask for permission to enroll. Once permission is received from the professor, the student and professor must complete the Variable Credit Form (available through the IAS program office or at http://www.uwb.edu/IAS/ba/Variable%20Credit.pdf), and the student must then return the signed form to the IAS Program Office to obtain an add code to register for the independent study. For each credit awarded, a student must write five pages. For example, a student would need to write a 25-page paper to receive five credits. **Independent study is not available in the summer**.

What resources are available to help me get connected with career and study opportunities in environmental science?
Students are encouraged to explore career opportunities early in the program, and should seek field experience (volunteer or paid) as often as possible to ensure a strong resume at the time of graduation. UW Bothell has a career center with career search resources and résumé assistance. Goals and interests should be discussed with science faculty as well, to ensure a connection with opportunities as they arise.

What opportunities do I have to study at centers in the field?
The UW has research center opportunities available periodically during the year. Speak with science faculty early in your program to determine the current opportunities available and any preparatory work that might be needed.

Minors at UWB

Minors are optional as part of your study at UWB. Interested students should review requirements and declare the minor through the corresponding advising department early in the program. Advisers in the IAS program should be notified if a minor is declared. More information can be found at the IAS website.

Business			
** 25 credits* ** prerequisites*	UW students from all majors may be eligible to earn minor in Business Administration at UWB. Interested students should discuss eligibility with the minor advisor.	***Advising:*** Paul Mahon Business Dept UW1-381 425-352-5449	***IAS note:*** BBUS credit may be applied towards electives only.
Computing and Software Systems			
** 30 credits minimum* ** prerequisites*	The minor provides students with the necessary programming and software management skills to work within a software development environment. Interested students should discuss eligibility with the minor advisor.	***Advising:*** Dina Meske CSS UW1-360 425-352-5279	***IAS Note:*** CSS minor credits may be applied towards electives only.
Education			
** 25 credits* ** no prerequisites*	The Minor in Education is intended to help students develop broad perspectives on the purposes and forms on education and schooling. Students who are interested in pursing teacher certification and who are admitted to the UWB Teacher Certification Extended Program may apply 16 credits of specified coursework within the minor towards certification requirements (note: admission to certification is not guaranteed with completion of the minor).	***Advising:*** Amelia Bowers Student Affairs UW1-160 425-352-5274	***IAS note:*** BEDUC credits may be applied towards electives only; see website for list of pre-approved IAS courses allowed for 5 credits of the minor
Human Rights			
** 25 credits* ** no prerequisites*	Human rights is both an idea and a phenomenon that can only be studied from an interdisciplinary perspective as it combines in a new way the study of philosophy, politics, culture and law. This UW tri-campus minor will give students the opportunity to develop an expertise in this rapidly emerging field.	***Advising:*** See an IAS Adviser UW1-390 425-352-5350	***IAS note:*** All UWB IAS courses used to meet minor requirements may also count towards major requirements.
Information Technology			
** 30 credits minimum* ** prerequisites*	The IT minor focuses on Information Management and gives students a background in software design methodologies, computer programming, database systems and strategies for automating industrial and organizational processes. Interested students should discuss eligibility with the minor advisor.	***Advising:*** Dina Meske UW1-360 425-352-5279	***IAS Note:*** CSS courses may be applied to degree electives only
Policy Studies			
** 30 credits* **Prerequisite: 200 level microeconomics course which is included in the 30 credits*	This minor is designed to provide students with the analytical foundations they will need to understand policy formulation, implementation, and evaluation.	***Advising:*** See an IAS Adviser UW1-390 425-352-5350	***IAS note:*** All UWB IAS courses used to meet minor requirements may also count towards major requirements

- INTERDISCIPLINARY ARTS AND SCIENCES -

BS IN ENVIRONMENTAL SCIENCE MAJOR CHECKLIST

Quarter started:_____ Need_____transcripts by _____

180 credits required for graduation

As of _____, credits completed:_____

Credits required for major: _____

Credits needed beyond major requirements *(to reach 180 credit minimum)*: _____

Prerequisites for the BS in Environmental Science	**Complete**	**Plan to complete**
Calculus I (B CUSP 124 or equivalent)		
General Chemistry I (B CUSP 142 or equivalent)		
General Chemistry II (B CUSP 152 or equivalent)		
General Chemistry III (B CUSP 162 or equivalent)		
Introductory Biology I (BES 180 or equivalent)		
Introductory Environmental Studies (BIS 240 or BIS 243 or equivalent)		
Introductory Earth System Science (BIS 242 or physical geography or oceanography or equivalent)		

Additional Prerequisites for the Conservation and Restoration Ecology (CRE) Pathway	**Complete**	**Plan to Complete**
Introductory Biology II (BES 200 or equivalent)		
Introductory Biology III (BES 220 or equivalent)		

Additional Prerequisites for the Earth System Science (ESS) Pathway	**Complete**	**Plan to Complete**
Introductory Physics I (B CUSP 143/146 or equivalent)		
Introductory Physics II or Calculus II (B CUSP 144/147 or B CUSP 145/148 or B CUSP 125 or equivalent)		

Areas of Knowledge

25 credits must be completed in each Area of Knowledge. At least 10 credits in each Area must be completed in (courses with a BIS or BES prefix). Multiply-designated courses cannot fulfill two Areas of Knowledge.

Visual, Literary, Performing Arts (VLPA)		**The Natural World (NW)**	
VLPA		NW	
VLPA		NW	
VLPA		NW	
(BIS or BES) VLPA		(BIS or BES) NW	
(BIS or BES) VLPA		(BIS or BES) NW	

Individual and Societies (I&S)	
I&S	
I&S	
I&S	
(BIS or BES) I&S	
(BIS or BES) I&S	

BS in Environmental Science Requirements – 90 credits			
Environmental Science Upper Division Requirements - 28 credits			
BIS 300 Interdisciplinary Inquiry *(required first quarter course)*			
BES 301 Science Methods & Practice			
BIS 315 Understanding Statistics*			
BES 312 Ecology			
BES 303 Environmental Monitoring Practicum *(3 credits)*			
BIS 342 Geographic Information Systems **OR** BES 439 Computer Modeling & Visualization in Environmental Science			
Pathway Core Course Requirements			
Conservation & Restoration Ecology (CRE) **CRE Core – 20 credits**		**Earth System Science (ESS)** **ESS Core – 15 credits**	
BES 316 Ecological Methods		BES 311 Environmental Chemistry	
BES 362 Introduction to Restoration Ecology		BES 315 Environmental Chemistry Lab	
BES 485 Conservation Biology		BES 318 Hydrogeology	
BES 311 Environmental Chemistry **OR** BES 318 Hydrogeology			
Pathway Distribution Requirements (lists of courses in each category follows on next page)			
CRE Distribution **20 credits**		**ESS Distribution** **25 credits**	
Environmental Science		Environmental Science	
Methods & Practices		Methods & Practices (1)	
Society & Environment		Methods & Practices (2)	
Environmental Policy & Management		Society & Environment	
		Environmental Policy & Management	
Capstone – 10 credits			
Capstone in Restoration Ecology (BES 462, 463 & 464) OR approved Independent Research			
Electives - 12 credits			

*A 200-level statistics course from another college or university will satisfy the statistics requirement but will not count for credit toward the Environmental Science major. Students with a 200-level statistics course may take BIS 315 or take 5 additional credits from the distribution lists.

Note: Courses used for program prerequisites cannot count toward program requirements. Courses listed in multiple categories may count in any category you choose, however, they will not count in multiple categories.

Environmental Science Courses

		CRE Pathway	ESS Pathway
BIS 241	Nature and the Northwest		
BIS 306	Marine Diversity and Conservation		
BES 311	Environmental Chemistry		
BES 315	Environmental Chemistry Lab		
BES 318	Hydrogeology		
BES 362	Introduction to Restoration Ecology		
BES 397	Special Topics in Environmental Science		
BES 3xx	*Evolution*		
BES 430	Air Pollution and Health		
BES 460	Water Quality		
BES 485	Conservation Biology		
BES 488	Wetland Ecology		
BES 4xx	*Adv. Topics in Environmental Science*		
BES 489	Pacific Northwest Ecosystems		
BES 490	Pacific NW Plants in Restoration & Conservation		

Methods & Practices Courses

		CRE Pathway	ESS Pathway
BIS 232	Using, Understanding & Visualizing Quantitative Data		
BES 302	Environmental Problem Solving		
BES 316	Ecological Methods		
BES 317	Soils Laboratory		
BES 3xx	*Science Writing*		
BES 415	Advanced Environmental Measurements Laboratory		
BES 439	Computer Modeling & Visualization in Environ. Science		
BES 487	Field Lab in Wildland Plants and Soils		
BES 490	Pacific NW Plants in Restoration & Conservation		

Environmental Policy & Management Courses

		CRE Pathway	ESS Pathway
BIS 346	Topics in Environmental Policy		
BIS 3xx	*Environmental Policy*		
BES 486	Watershed Ecology & Management		
BIS 4xx	*Land Use Planning & Conservation*		

Society & Environment Courses

		CRE Pathway	ESS Pathway
BIS 240	Introduction to Sustainable Practices		
BIS 356	Ethics and the Environment		
BIS 358	Issues in Environmental Science		
BIS 386	Global Environmental Issues		
BIS 390	Ecology and the Environment		
BIS 391	Environ. History of the Pacific Northwest Bioregion		
BIS 392	Water and Sustainability		
BIS 395	Environmental Changes in WA State		
BIS 396	Topics in Sustainability		
BIS 397	Topics in Environmental Studies		
BIS 411	Biotechnology and Society		
BIS 458	Energy, Environment & Society		
BIS 459	Conservation and Sustainable Development		

Note: Students should refer to the Bachelor of Science in Environmental Science website for the most up-to-date course lists: http://www.uwb.edu/IAS/bs/.