Student Guide to the Environmental Science Program

2009-10

Environmental Science Program
DePaul University
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Chicago, IL 60614
Phone:773-325-7447 FAX:773-325-7448
http://las.depaul.edu/env/

Welcome!

The Environmental Science Program (ESP) is a closely knit group of faculty, staff, and students dedicated to understanding how humans interact with the environment and to exploring ways to minimize human impacts. ESP faculty and staff members work closely with students to research these issues with an emphasis on topics that affect the greater Chicago area. Because of the relatively low numbers of students per faculty member, advising is very personalized. But the broad nature of environmental science leads to a range of different academic pathways, and this guide documents the various options available within ESP.

This guide is intended to aid ESP students (BS, BA, and minors) to successfully carry out their programs. We have tried to include a lot of the information that students would find useful in both scheduling their courses, deciding on electives to take, and thinking about their Environmental Science degrees in the context of larger academic and career goals. Much of this information is collected from various websites, and links are provided whenever possible. Since this is a first edition, we apologize in advance for any errors or mistakes that are in the booklet. Please let us know of any errors that you find, as well as any additional types of information you would like us to put in. Our goal is to make sure that every student has access to all the information they need to complete our program and help them succeed in their academic careers.

Contacting Faculty

The list of faculty, along with their office address and phone number, are listed on the following page. You should be sure to talk with your academic advisor on a regular basis to ensure that you are on track for completing the program with the types of electives and options that best fit your needs. If you don't know whom your academic advisor is, please stop by or call the ESP Office (McGowan South Room 203, phone 773-325-7447, campus extension 57447). In addition to contacting the faculty in person or by phone, there are mailboxes in the main ESP office where you can leave them any material or written messages. The main ESP office is generally open Monday through Friday from 9 AM to 5 PM.

List of Faculty

Name and specialization	McGowan South Office	Extension	E-mail
Judith Bramble (Zoology, Biodiversity, Ecological Restoration, Environmental Education)	203D	x52775	jbramble@depaul.edu
Kim Frye (adjunct)	203B	x57366	kfrye1@depaul.edu
Liam Heneghan (Zoology, Ecology, Ecosystems, Invasive Species, Chicago Wilderness)	203C	x52779	lhenegha@depaul.edu
Vassia Heneghan (Program Administrator)	203	x57447	vhenegha@depaul.edu
James Montgomery (**Chair**; Geology, Soils, Wetlands)	203A	x52771	jmontgom@depaul.edu
Thomas Murphy (Emeritus; Organic Chemistry, Atmospheric Toxic Deposition)	203B	x57366	tmurphy@depaul.edu
Mark Potosnak (Biosphere/Atmosphere Interactions)	203F	x57867	mpotosna@depaul.edu
Sarah Richardson (Plant Ecologist)	203E	x52067	sricha10@depaul.edu
Kenshu Shimada (Geology, Biology, Paleontology)	203G	x54697	kshimada@depaul.edu
Lauren Umek (Urban Forestry Project Coordinator)	504	x54639	lumek@depaul.edu
Margaret Workman (Laboratorian; Atmospheric Chemistry, Ozone Depletion)	203H	x57445	mworkman@depaul.edu

From outside DePaul, all these phone extensions can be dialed by preceding the extension with 773-32- (e.g. Dr. Montgomery's # would be 773-325-2771).

http://las.depaul.edu/env/People/index.asp

Outline of ESP Curriculum (BS)

ESP Core Requirements (8 courses, 28 quarter hours)
1 year of Core Courses (BIO 215 & ENV 216/217)
Sequence of ESP seminar courses and senior thesis (ENV 260/294/350/360/362)

ESP Areas of Emphasis (3 courses, 12 quarter hours)
Choose from Biology, Chemistry, Earth Science, Geography, Public Policy or Urban Ecology and Conservation Biology

Allied Field Requirements (15 courses, 60 quarter hours)
1 year of General Biology (BIO 101/102/103)
1 year of General Chemistry (CHE 111/113/115 or CHE 131/133/115)
1 year of Organic Chemistry (CHE 171/173/175 or CHE 169/205 & *Env Chem*)
1 year of Physics (PHY 150/151/152)
1 year of Calculus (MAT 147/148/149 or 150/151/152 or 170/171/172)

Liberal Studies Requirements (18 courses, 72 quarter hours)
2 Composition Courses
2 Freshman Seminar Courses (1 Explore or Discover Chicago, 1 Focal Point)
1 Sophomore Multicultural Seminar Course
1 Junior Experiential Learning Course*

3 Arts & Literature Courses (no more than 2 from any department)
2 Philosophical Inquiry Courses
2 Religious Dimensions Courses (1 in each subset)
3 Self, Society, & Modern World Courses
2 Understanding the Past (each from a different geographical area)

General Electives (5 courses, 20 quarter hours)
5 courses (anything you want)

Total = 49 courses (192 quarter hours total)

Other Considerations
Students must have a C- or better in any majors & allied field courses to count towards major.
Students must maintain an overall C average (GPA of 2.0) to avoid academic probation.

*See note below about experiential learning.

http://sr.depaul.edu/catalog/catalogfiles/current/College%20of%20Liberal%20Arts%20and%20Sciences%20Undergraduate%20Studies/pg359.html

Outline of ESP Curriculum (BA)

ESP Core Requirements (17 courses, 66 quarter hours)
Foundation course (ENV 150)

Natural Sciences (9 courses, 34 quarter hours)
1 year of Core Courses (BIO 215 & ENV 216/217)
Data analysis (ENV 260)
Second year seminar (ENV 294, 2 quarter hour course)
1 year of General Biology (BIO 101/102/103)
Chemistry (CHE 101 or CHE 111)

Social sciences (3/4* courses, 12 /16* quarter hours)
One of communications (CMNS 325 or 326)
Two (or three) of CMN 325, GEO 120/210, SOC 232/348

Humanities (4 courses, 16 quarter hours)
One to two of ENV 160/170, PHL 235
At least two of the following ART xxx, ENG 367, HST 240/270, REL 262, ANT 202/254
*If ENV 150 is waived by advisor, then need four social science courses

Liberal Studies Requirements (21 courses, 84 quarter hours)
2 Composition Courses
2 MTL classes
2 Freshman Seminar Courses (1 Explore or Discover Chicago, 1 Focal Point)
1 Sophomore Multicultural Seminar Course
1 Junior Experiential Learning Course*
1 Senior Capstone Course (ENV 350)

3 Arts & Literature Courses (no more than 2 from any department)
2 Philosophical Inquiry Courses
2 Religious Dimensions Courses (1 in each subset)
3 Self, Society, & Modern World Courses
2 Understanding the Past (each from a different geographical area)

General Electives (11 courses, 44 quarter hours)
11 courses (anything you want)

Total = 49 courses (4 per quarter, 194 quarter hour total)

Other Considerations
Students must have a C- or better in any majors & allied field courses to count towards major.
Students must maintain an overall C average (GPA of 2.0) to avoid academic probation.

*See note below about experiential learning.

http://sr.depaul.edu/catalog/catalogfiles/current/College%20of%20Liberal%20Arts%20and%20Sciences%20Undergraduate%20Studies/pg362.html

Ideal Timeline for General Freshman Students (BS)

	Autumn Quarter	**Winter Quarter**	**Spring Quarter**
YEAR 1			
	Gen Bio 101	Gen Bio 102	Gen Bio 103
	Gen Chem	Gen Chem	Gen Chem
	Explore/Disc. Chicago	Lib Stud Elect.	Focal Point
	Comp/Rhetoric I	Comp/Rhetoric II	Gen Elect (Math)
YEAR 2			
	Ecology	Earth Systems	Human Impacts
	Lib Stud Elect	Lib Stud Elect	Lib Stud Elect
	Calculus	Calculus	Calculus
	Lib Stud (Soph Sem)	ESP Emphasis	Lib Stud Elect
		ESP 2nd yr sem*	
YEAR 3			
	ESP Emphasis	ESP Emphasis	Research methods
	Organic Chem	Organic Chem	Organic Chem
	Lib Stud Elect	Lib Stud Elect	Gen Elect
	Lib Stud Elect	Env data analysis	Lib Stud Elect (JYEL)
YEAR 4			
	Physics	Physics	Physics
	Lib Stud Elect	Senior thesis*	Lib Stud Elect
	Lib Stud Elect	Lib Stud Elect	Capstone
	Gen Elect	Gen Elect	Gen Elect

* Two quarter hour course

Liberal Studies and General Elective slots are flexible and can be switched around relatively freely as needed. Students will need to use their Elective slots in their first year for any pre-calc math requirements. If math skills are a particular problem (e.g. you are assessed to take MATH 101), students might wish to consider taking their Math pre-calc courses their freshman year, then taking General Chem and General Bio their second year (pushing back organic chemistry to Year 4) once their math skills are stronger.

Ideal Timeline for General Freshman Students (BA)

	Autumn Quarter	**Winter Quarter**	**Spring Quarter**
YEAR 1			
	Gen Elect	Gen Elect	Gen Elect
	LSP 120	LSP 121	Soc Sci Elect
	Explore/Disc. Chicago	Lib Stud Elect	Focal Point
	Comp/Rhetoric I	Comp/Rhetoric II	Lib Stud Elect
YEAR 2			
	Gen Bio 101	Gen Bio 102	Gen Bio 103
	Lib Stud Elect	Lib Stud Elect	Lib Stud Elect
	Foundations of Env Studies	Env Ethics	Ideas of Nature
	Lib Stud (Soph Sem)	Gen Elect	Humanity
		ESP 2nd yr sem*	
YEAR 3			
	Ecology	Earth Systems	Human Impacts
	Soc Sci Elect	Lib Stud Elect	Soc Sci Elect
	Lib Stud Elect	Lib Stud Elect	Gen Elect
	Gen Elect	Env data analysis	Lib Studies (JYEL)
YEAR 4			
	Chem	Gen Elect	Gen Elect
	Lib Stud Elect	Humanity	Lib Stud Elect
	Lib Stud Elect	Lib Stud Elect	Capstone
	Gen Elect	Gen Elect	Gen Elect

* Two quarter hour course

Liberal Studies and General Elective slots are flexible and can be switched around relatively freely as needed.

Class standing

Note: students are considered to have gone up one level in academic standing for every 48 credits they take (i.e. freshman is 48 credits or less, sophomore is 49-96 credits, etc.)

AP credit from High School

Currently, students get credit for one quarter of General Biology for a "3", two for a "4", and a full year for a "5" score on a Biology AP exam. Those students scoring less than 5 should consult their advisor or departmental chair to determine which quarters of General Biology should receive the credit. We also encourage those students with strong backgrounds (e.g. "5" on the AP exams), may wish to start their freshman year by taking the ESP core courses if appropriate, allowing them to take additional ESP electives in their senior year.

Experiential Learning

The experiential learning component of the Liberal Studies requirements can currently be filled in several ways. We currently have two courses specific for ESP students: ENV 322 (Ecosystem ecology) and ENV 361 (a course involved in learning about ESP research - for students who are involved with lab-based research. In addition, there are numerous study abroad or service-based learning courses that fulfill the requirements, as well as IPS 250 internship courses:

http://www.careercenter.depaul.edu/student/job/uip.aspx

More courses may be in development, so please keep in touch with your advisor on this issue.

http://sr.depaul.edu/catalog/catalogfiles/Current/Liberal%20Studies%20Program%20for%20Undergraduates/pg15.html

ESP Minors

Students wishing to be ESP minors should see the Department Chair to inform the department of their intention to be an ESP minor and to help in the selection of an academic advisor. To qualify for an environmental science minor, the student will need to take five environmental science courses. This should include ENV 102, one of the 300-level courses, and three other ENV classes chosen from among the following: ENV 115, 116, 200, 202, 220, 224, 250, 270, 322, 340, 342 and 350. In addition to ENV 102, the chosen classes should include at least one with a laboratory. The selection of the three courses is up to the student and the academic advisor, based on their interests and career goals. Once the requirements for the minor have been completed, the student should see their academic advisor, so that the fulfillment of the minor requirements can be confirmed.

http://sr.depaul.edu/catalog/catalogfiles/current/College%20of%20Liberal%20Arts%20and%20Sciences%20Undergraduate%20Studies/pg361.html

Research Opportunities

Faculty within ESP often have positions available for undergraduates seeking research opportunities, and the funding for such opportunities is constantly increasing (e.g. through the LAS Research Assistant and Summer Research Grants). We encourage students to contact

faculty and explore the opportunity for research. It's not only fun and educational, but it can often leads to co-authorship on abstracts, poster presentations, or manuscripts. It's a great experience and extremely rewarding, so please think about doing some research during your time at DePaul.

Senior thesis

A senior thesis is a report on a significant research project conducted by a student under the supervision of ESP faculty. ESP majors are required to complete a senior thesis in order to graduate. This requirement is intended to provide students with the experience and skills needed to plan and carry out an investigative project in an area of interest to them. The process includes formulating valid research questions and hypotheses, designing a research plan, collecting and analyzing data, and summarizing the data in written and oral formats. Conducting a thesis also involves interaction among faculty and peers, which is an important 'intangible' aspect of science education. As part of this experience, each student also has an opportunity to orally present their work to faculty and other ESP students during the Spring quarter of their senior year. The experience gained through conducting a senior thesis project is invaluable for a senior-level student. Regardless of the career plan of the student, both the student and their prospective employer benefit from the student's research experience. A fuller description is available on the ESP website:

http://las.depaul.edu/env/StudentResources/SeniorThesis/index.asp

Transfer Students

A considerable number of our ESP students have transferred in many credits from other Colleges and Universities. Many have transferred from majors other than environmental science. Because the number and types of courses transferred varies considerably ***we strongly urge transfer students to see their academic advisors as soon as possible after they transfer into ESP so that we can make sure you are on track to take the proper courses, and so that we can establish an appropriate timeline for graduating from the program.***

Despite the variations in courses that are transferred, students are encouraged to take as much as possible in sequence (i.e. core courses before electives, all required courses before electives) to avoid taking more elementary or more required courses in their last few quarters at DePaul. Students should also pay particular note of the prerequisites suggested or required for their desired ESP electives, to ensure that they take the necessary background courses prior to taking

Transfer students should meet with your academic advisor, and bring a complete list of the courses that have been transferred to DePaul, as well as any other transcripts or information relating to courses you think may not have transferred properly. If you think there are courses that were mis-assigned upon your transfer (e.g. ESP courses that were given credit as liberal studies courses or elective courses) be sure to bring a course description (and syllabus if possible) to your academic advisor when you meet so that the advisor can determine the proper placement of the course.

Students transferring from another major, or from backgrounds with little or no science courses, should realize that it might take longer to complete the degree than expected, due to the required

sequencing of courses (e.g. General Chemistry must be taken before Organic Chemistry, General Biology must be taken before the biology and ESP core courses). In talking with your advisor, make sure that you both understand and are comfortable with any outlined timeline for completion of the ESP program.

Registering as an ESP Major or Minor

If you intend to graduate as an ESP major, or with an ESP minor, be sure that you are officially registered in the system. If you need to register, please come in to the ESP office and fill out a "Declaration of Program Plan Change Form" (you can also download this form online as a pdf file at:
http://las.depaul.edu/StudentServices/Undergraduate/AcademicAdvising/FormsLibrary.asp - just click on Declaration of Major, Minor and Concentration). The form can then be turned in to the LA&S undergraduate office at 990 W. Fullerton. If you do not have an academic advisor, please make an appointment to see the Chair of the department, Dr. Montgomery, and he will assign you one.

Course Offerings in 2009-2010 by Quarter

Autumn Quarter	Winter Quarter	Spring Quarter
ENV 101 – Intro to Env Sci (w/out lab)	ENV 101– Intro to Env Sci (w/out lab)	
ENV 102 – Intro to Env Sci (w/lab)	ENV 102 – Intro to Env Sci (w/lab)	ENV 102 – Intro to Env Sci (w/lab)
ENV 117 – Earth Through Time		ENV 117 – Earth Through Time
ENV 150 – Foundations	ENV 170 – Ethics	ENV 160 – Ideas of Nature
ENV 200 – Cities		
ENV 202 – Resources	ENV 202 – Resources	ENV 202 – Resources
		ENV 204 – Energy
Bio 215 – Ecology	ENV 216 – Earth Systems	ENV 217 – Human dim
	ENV 230 – Global Change	Bio 215 – Ecology
	ENV 260 – Data Analysis	ENV 320 – Conservation Bio
	ENV 294 – 2nd yr sem	
	ENV 360 – Res methods	ENV 350 – Capstone

Students are advised to look at the course catalogue (available through Campus Connection) and discuss the courses with their academic advisors to make sure they know what the courses are about before they register. Copies of recent syllabi for most of our courses are available in the ESP office.

ESP Liberal Studies Offerings

Focal Point/Explore Chicago Courses (Majors or Non-Majors)
LSP 112-315 – Restoration in Chicago
LSP 112 – Global warming and the media

http://liberalstudies.depaul.edu/CoursesandRequirements/LSPCourseDescriptions/index.asp

Experiential Learning Courses (Primarily Majors)
ENV 322 – Ecosystem ecology
ENV 361 – Research in environmental science

http://sr.depaul.edu/catalog/catalogfiles/Current/Liberal%20Studies%20Program%20for%20Undergraduates/pg15.html

Capstone Course (Majors)
ENV 350 – Capstone seminar

http://sr.depaul.edu/catalog/catalogfiles/Current/Liberal%20Studies%20Program%20for%20Undergraduates/pg17.html

Scientific Inquiry Courses (Non-Majors)
In general non-science majors need to take 3 SI Courses, 1 lab (L), 1 quant (Q), 1 free elective
These courses DO NOT count towards electives for ESP Majors or Minors
Letters after the title (A/W/S) refer to the quarter they are offered in 2009-20010 academic year

ENV 101 – Introduction to Environmental Science (SI Q, A/W/S)
ENV 102 – Introduction to Environmental Science (SI LQ, A/W/S)
(Can't get credit for both 101 and 102)
ENV 115 – Environmental geology (SI LQ, not offered 2009-10)
ENV 116 – Geology and the environment (SI, not offered 2009-10)
ENV 117 – Earth through time (SI L, A/S)
ENV 200 – Cities and the environment (SI, A)
ENV 202 – Resources, population and the environment (SI, A/W/S)
ENV 204 – Energy and the environment (SI, S)
ENV 211 – Biogeography (SI ?, not offered 2009-10) (not on LSP website)
ENV 224 – Environment of the Chicago River (SI LQ, not offered 2009-10)
ENV 230 – Global climate change (SI E, W)
ENV 270 – Tropical conservation and development (SI LQ, not offered 2009-10) (listed on LSP website)

http://sr.depaul.edu/catalog/catalogfiles/Current/Liberal%20Studies%20Program%20for%20Undergraduates/pg25.html

Elective Suggestions for the areas of emphasis (just some possibilities—many have great overlap)

BIOLOGY
BIO 210 – Microbiology
BIO 250 – Cell Biology
BIO 260 – Genetics
BIO 309 – Plant Physiology
BIO 317 – Aquatic Biology
BIO 365 – Toxicology

CHEMISTRY
CHE 205 – Quantitative Analysis
CHE 210 – Physical Chemistry
CHE 240 – Intro to Biochemistry
CHE 261 – Instrumental Analysis
CHE 265 – Air chemistry
CHE 267 – Water Chemistry
CHE 269 – Solid Waste Chemistry

EARTH SCIENCE
ENV 115 – Environmental Geology
ENV 220 – Soil Science
ENV 224 – Environment / Chicago River
GEO 225 – Weather & Climate
GEO 241 – Computer Cartography
GEO 242 – Geography Info Systems
GEO 243 – Remote Sensing

GEOGRAPHY
GEO 101/2 – Earth's Physical Landscape
GEO 210 – Environmental Conservation
GEO 225 – Weather & Climate
GEO 240 – Maps!
GEO 241 – Computer Cartography
GEO 242 – Geographic Info Systems
GEO 243 – Remote Sensing
GEO 310 – Landuse Ethics
GEO 333 – City Problems and Planning

PUBLIC POLICY
PPS 201 – Public Policy and Urban Issues
PPS 202 – Public Policy & Env Issues
PPS 302 – Implementation of Env and Urban Policy
PPS 320 – Public Policy in Production/Use of Energy & Pollution Control
PPS 324 – Public Policy & Natural Resources
PPS 330 – Sustainable Development

URBAN ECOLOGY AND CONSERVATION BIOLOGY
ENV 200 – Cities & the Environment
ENV 230 – Global climate change
ENV 250 – Applied Ecology
ENV 300 – Plant Identification
ENV 315 – Plant Ecology
ENV 320 – Conservation Biology
ENV 322 – Ecosystem Ecology
ENV 330 – Field Methods
ENV 340 – Issues in Urban Ecology
ENV 342 – Natural History of Forests
ENV 355 – Environmental Health