

## **ENVIRONMENTAL STUDIES ASSESSMENT REPORT – 2012**

Submitted by Dan Hornbach, Chair – May 2012

The Environmental Studies Department developed its Departmental Assessment Plan during the 2008-2009 academic year. This plan was provided to the Provost and Institutional Research department in April 2009. Based on this plan there are 4 tasks in the assessment plan that are to be undertaken each year:

1. Transcript analysis of graduates,
2. A senior survey,
3. An assessment of graduates' performance relative to the learning objectives set out by the department, and
4. Discussion of #1-3 above and planning to improve the education of our students.

We have attached separate summaries of the transcript analysis, senior survey and outcomes assessment conducted during 2012. Since this was the fourth year of the implementation of our assessment plan we were able to use our longitudinal database to help us in our assessment process. After our fifth year (2013) the department will discuss the current assessment methodology and decide whether to make changes in our assessment activities. The department discussed the transcript analysis at a meeting on April 18, 2012 and the senior survey and outcomes rubrics (task #3) on May 2, 2012.

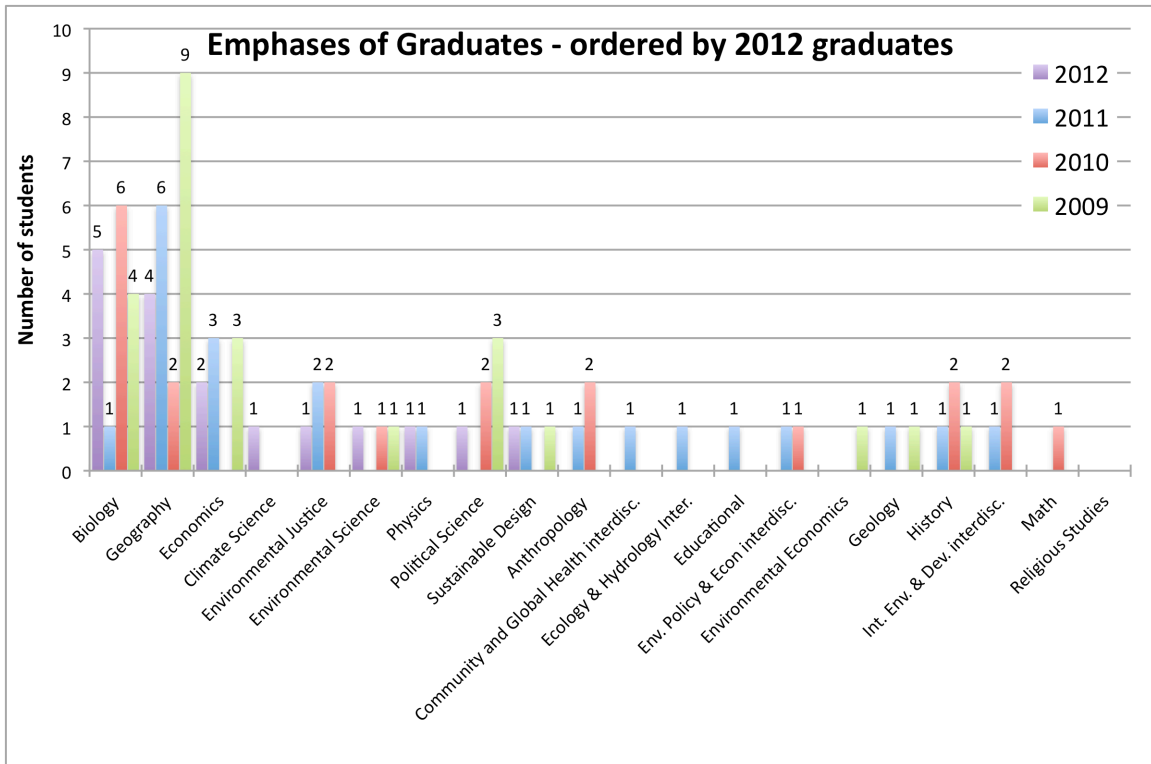
Based on these discussions we:

1. Will monitor the international content of our courses with the goal of introducing students to the international context of many environmental issues.
2. Will continue to work on developing labs in the two courses that meet the introductory Environment Science requirement (ENVI 133 or ENVI 140) that are specifically designed to allow students to develop a hypothesis and test it.
3. Will have a retreat in late summer 2012 to discuss curricular issues, especially the capstone requirement in the department.
4. Will continue to discuss the role of economics in our curriculum.
5. Will do more to explain to students that interdisciplinarity can impart "depth" and that specialization does not necessarily equate with "depth."
6. Will continue to use the same assessment instruments for at least one more year so we can have comparable data for our longitudinal study. We will then review these instruments.
7. We will review our department's learning outcome goals in advance of the next department review.

We believe that these activities will allow us to continue to improve upon our strong departmental programs.

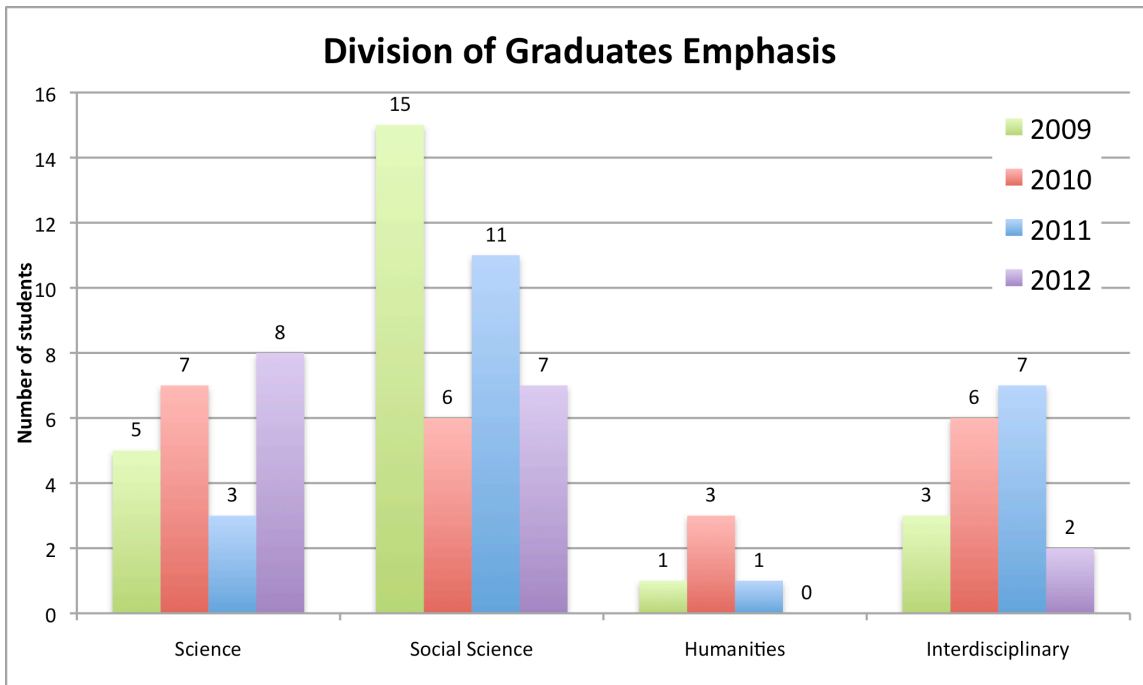
# APPENDIX I. TRANSCRIPT SUMMARY FOR 2012 ENVIRONMENTAL STUDIES GRADUATES

As part of the Environmental Studies Department annual assessment program, we undertook an analysis of the transcripts of the seventeen 2012 ES graduates. For each student the Registrar’s office provided a list of all courses taken by the individual. We had 17 graduates in 2012, but one of these was a student from St. Catherine’s, so we don’t have a set of course information for that student. Dan Hornbach, Chair of ES, analyzed these data and the results (below) were discussed by the ES Department on April 12, 2012. A summary of the analysis and discussion is presented below.



**Figure 1. Number of students choosing various emphases in ES.**

Figure 1 shows the distribution of emphases chosen by the 2012 graduates. Our major requires that student choose an emphasis in order to gain depth in some area within Environmental Studies. The most popular emphasis this year was Biology (5 students) – there was only 1 student with a Biology emphasis last year. Geography was the most popular emphasis last year and there were 4 students with a Geography emphasis this year. It appears that Geography and Biology will continue to vie for the most popular emphasis.



**Figure 2. Number of ES students choosing emphases in different divisions.**

Of the 2012 graduates 15 had disciplinary emphases and 2 had interdisciplinary emphases (Figure 2). There had been a trend of more students choosing interdisciplinary emphases (7, 6 and 3 in 2011, 2010 and 2009, respectively), but this was reversed in 2012. Of the 15 graduates with disciplinary emphases, 8 were in the sciences (up from 3 last year), 7 were in the social sciences (down from 11 last year) and none was in the humanities (compared to 1 last year). Overall we had 9 different emphases declared by our majors compared with 14 emphases last year (Figure 1). We had been seeing an increase in the diversification of emphases but this year there has been a move back to fewer emphases. This might be expected with the reduced number of graduates this year. Last year we were concerned about a decline in the number of Biology emphases and that we had less of a “balance” between science and social science students. We indicated we would have to monitor this imbalance and stated that if we were to have a long-term imbalance between these divisions, we would have to investigate the underlying cause. It appears that graduates this year are exhibiting a greater balance between the sciences and social sciences and our concern last year may have been premature. Similar to the past two years we are still low in the number of humanities students. We made a request that the former position held by Karen Warren in the Philosophy Dept be filled with another environmental philosopher. Unfortunately, Philosophy was not allowed to refill her position and it appears that this position will not be filled anytime soon. With the hiring of Jamie Monson in the History Dept. and the offering of some additional courses in the English Department in environmental literature/writing we had hoped that the number of humanities emphases might increase. However, the fact that both of these departments have not had consistent offering of cross-listed ENVI courses may dissuade students from

choosing an emphasis in these areas. We will continue to work with these and other humanities departments to enhance their offerings in environmentally related areas and we hope that in the future more departments in the Humanities Division will hire individuals with expertise in the environment.

Figure 3 shows the range of classes taken by the 2012 graduates (excluding those in which they are currently registered – spring 2012). In this analysis all cross-listed courses were included under their ENVI number regardless of whether students registered for the course as an ENVI course or not. The most common courses taken by ES majors include our required Environmental Classics (ENVI280), American Environmental History (ENVI 234) and Environmental Policy and Politics (ENVI 215) courses. The 2012 cohort of students was not yet required to take 3 introductory courses and this accounts for the fact that not all students took these courses. ENVI 133 (Environmental Science) was taken by 7 of our students. Although not shown in Fig. 3 another 4 students took the Earth's Climate System (ENVS 140) thus a total of 11 of our students took one of the options for meeting the introductory science requirement. We changed the major requirements based on our assessment efforts over the past few years and we expect an increased number of students taking both ENVI 215 and ENVI 133 or ENVI 140.

Approximately 56% of our students took Principles of Economics up from only 36% of our 2011 graduates and from nearly half in 2009 and 2010. We had been concerned last year with the drop in 2011 and the department met with Sarah West and Amy Damon of the Economics department (affiliated faculty in the ES Department) last year. Based on our conversation we decided to provide “incentives” for all students to take ECON 119 allowing this course to meet one of our ES Social Science distribution courses if the course is taught by either Prof. Damon or West. We also added ECON 119 as a requirement for the Political Science and International Environment and Development emphases and as a elective course for the Climate Science and Policy emphasis. Whether these changes are actually responsible for the uptick in the number of 2012 graduates taking ECON 119 is unclear (?). We hope that the number of students taking economics remains high. Unfortunately next year (2012-2013) Sarah West is only teaching ECON 119 as a first year course and Amy Damon is not teaching a section of ECON 119.

We continue to have about a third of our students take Single Variable or Applied Calculus (MATH 135 or 137). In 2012 31% of our students took GIS, up from 27% in 2010 but still below the 36% in 2011 and the 73% in 2009. In 2009 only 42% of our students had taken a statistics course (Math 153/155) and that increased to 64% in 2010 and remained close to that at 60% in 2011 but fell again to about 42% in 2012. In 2012 only 9 of our 16 graduates had taken any math course. Two students who did not take math took Principles of Economics, leaving 5 students who took neither math nor economics. Three of these students took GIS, thus there were 2 students who had none of these more quantitatively focused methods courses.

Only 4 of our graduates took Ethics (PHIL 115) or Environmental Ethics (PHIL 115). That's the lowest percentage (25%) in the time we've been tracking these data (63%, 27% and 50% for 2011, 2010 and 2009 respectively). We had been concerned about the

low number taking an ethics course but with last years number it appeared our students were taking a greater interest in this area. With the low number again this year, we continue to have some concern. Again, the lack of an Environmental Philosopher hampers our students' ability to have upper level courses that would support our students with interests in Environmental Justice. Of the 2012 graduates an additional 9 students (56%) took Environmental Justice (ENVI 237). Students taking this course received some of the information/approaches we were hoping they would get in an ethics course. Chris Wells will begin offering this course every year in the spring starting in Spring 2014.

Seventy-five percent (75%) of our students studied away during their time at Macalester up from 55% in 2010 and 67% in 2009 but down from 82% last year. This large number of student studying away results in a number of "SA" courses. With the development of departmental representatives to the International Center (Louisa Bradtmiller from ES) we are hoping we can strengthen our recommendations for the best study away programs. With a likely change from recommended to approved study away programs we will have to spend some time in the next few years investigating the best programs for ES majors.

As we discuss the future of our assessment process, we might want to consider mapping the courses our students most often take onto our larger learning goals for the major. This should help us see whether the constellations of courses are students are taking allow them to meet our learning goals.

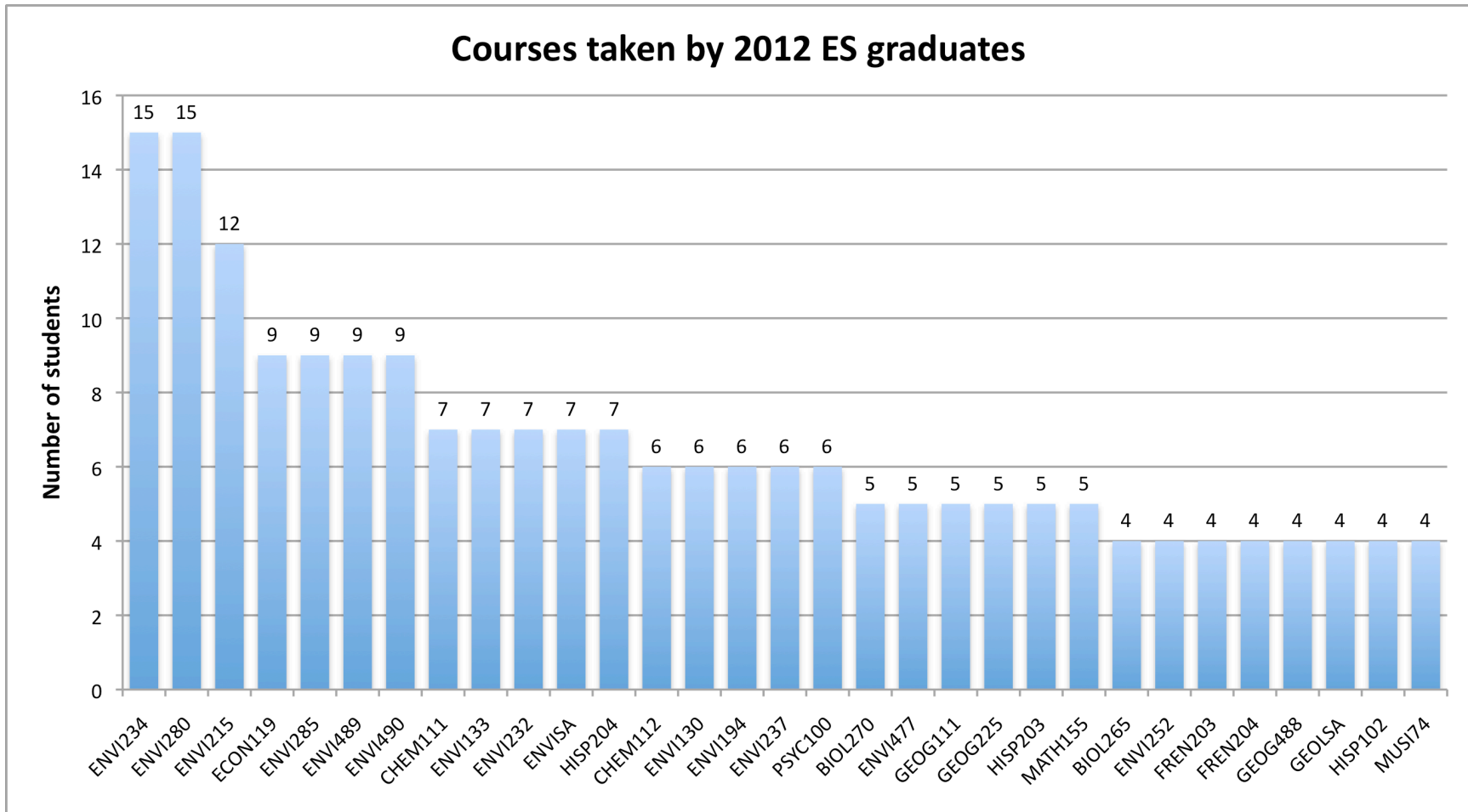


Figure 3. Number of course enrollments. Course titles are given in Table 1.

Table 1. Course titles.

<b>Number</b>	<b>Title</b>
BIOL265	Cell Biology
BIOL270	Biodiversity & Evolution
CHEM111	Intro Chemistry I
CHEM112	Intro Chemistry II
ECON119	Intro Economics
ENVI130	Sci Renewable Energy
ENVI133	Envi Science
ENVI194	Variety of Topics
ENVI215	Envi Policy & Politics
ENVI232	People Agriculture & Environment
ENVI234	American Environmental History
ENVI237	Environmental Justice
ENVI252	Water & Power
ENVI280	Environmental Classics
ENVI285	Ecology
ENVI477	Comparative Environment & Development

<b>Number</b>	<b>Title</b>
ENVI489	Leadership Practicum
ENVI490	Leadership Seminar
ENVISA	ES study away
FREN203	French III
FREN204	Text, Film & Media
GEOG111	Human Geography
GEOG225	GIS
GEOG488	Cities of 21st Cent
GEOLSA	Geography Study away
HISP102	Spanish I
HISP203	Intermediate Spanish I
HISP204	Intermediate Spanish II
MATH155	Statistical Modeling
MUSI74	Music
PSYC100	Intro Psychology

ES students take courses in a wide variety of departments. Almost half of our students took courses in 9 departments (Figure 4). Unsurprisingly all of our majors took at least one ENVI course! Even though only 4 of our graduates had a Geography emphasis, 14 of the graduates took at least one course in Geography. In addition, 5 of our graduates who did not have an emphasis in Geography took one of the Geography senior seminars to meet their requirement for the ES capstone. Only 7 students took the ES capstone (not shown because spring 2012 courses are not included in the information from the Registrar). We are in the process of discussing our senior capstone experience.

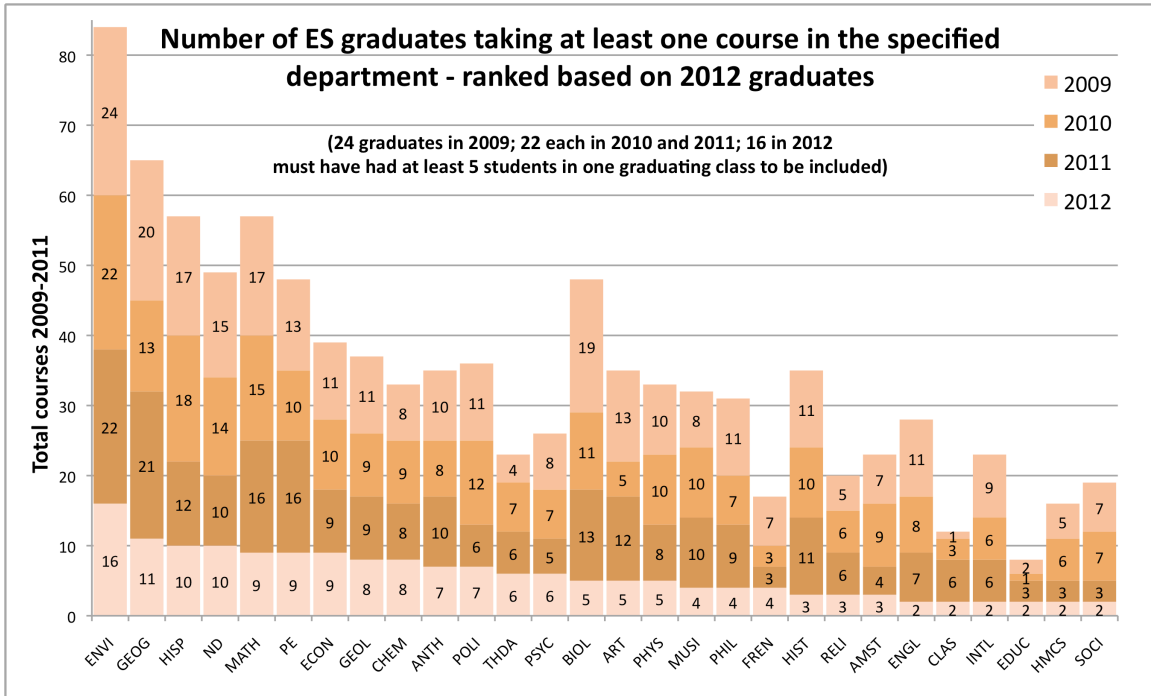


Figure 4. Number of courses taken per department.

Many students take Spanish (HISP) as their required language, although many take additional courses to prepare them for study away. Also a large number of students are physically active (PE courses). We already have close interactions with faculty in Geography, Biology, Economics, English, Geology, History, and Political Science. As mentioned last year we have been developing closer ties with the Mathematics Dept. (we have at least one student that will be completing a Math emphasis within ES in the next couple of years).

Since we have such a diverse major, we look for patterns in the way students take courses at the College. We used cluster analysis to examine trends in how students with various emphases take classes (Fig. 5). The first thing to notice (looking at the “tree” on the right) is that there is one student with a Biology Emphasis that doesn’t cluster with any other students. This particular student took a set of Biology courses including Biogeography, Vertebrate Biology, and a Biology Independent and Preceptorship that other Biology students did not take. The other “outlier” student



is the one student with a Physics emphasis. All of the students with a Geography emphasis are found in the same cluster by they overlap with students with a variety of other emphases. Thus there was no specific correspondence between the clusters and the specific emphases chosen by our graduates. This indicates that our majors find a number of curricular pathways to meet their specific educational goals, while at the same time meeting the requirements for the ES major. Since our 17 graduates fall into 9 different emphases, we shouldn't expect too much clustering among the courses they take. We discussed this diversity of experience and at this point are comfortable with it. We will discuss this more fully at a retreat in August where we will also discuss our senior capstone experience.

Course distribution of various emphases with language and PE courses removed.

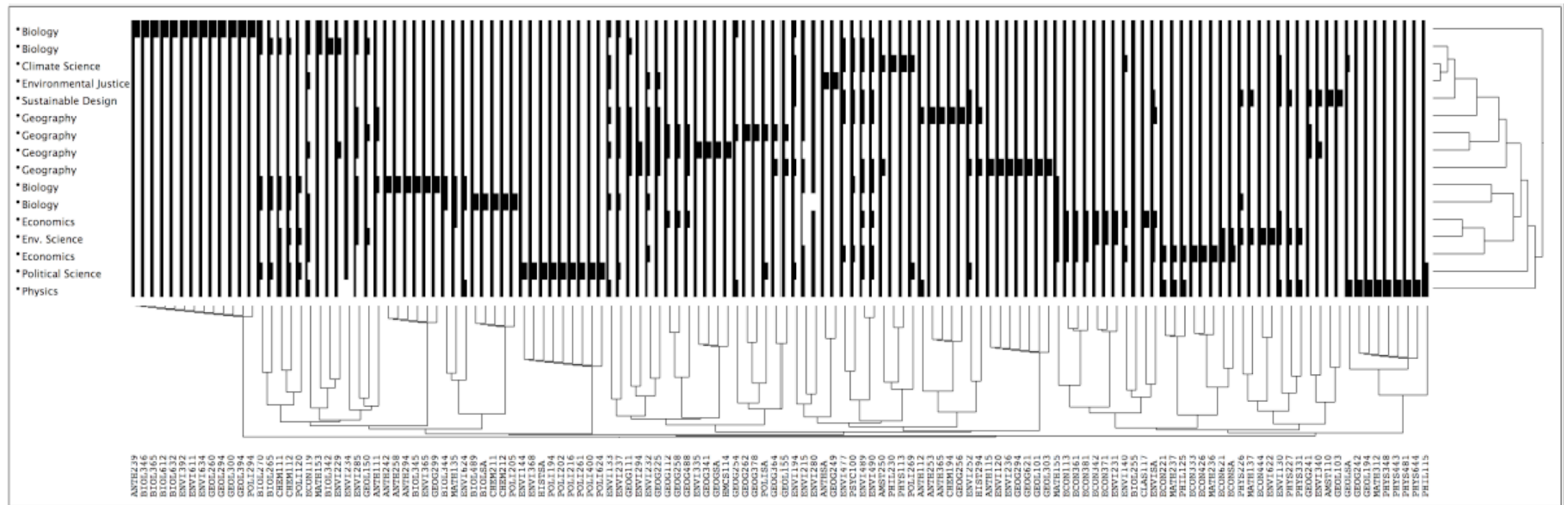


Figure 5. Cluster analysis of courses taken by 2010 ES graduates.

How to read this graph: First – Zoom to about 200% so you can read the text! Emphases are found on the left. In the center, each column represents an individual course. Course numbers can be found in Table 2. The thick bar indicates that an individual student took the course. For example the black bar on the top, far left represents the student took ANTH 239 while the black bar on the bottom right refers to PHIL112. On the right, the cluster “tree” shows how students are clustered together based on shared courses. On the bottom is the cluster of courses taken.

Table 2. The list of courses from Figure 5.

<b>Course Number</b>	<b>Course Title</b>	<b>Course Number</b>	<b>Course Title</b>	<b>Course Number</b>	<b>Course Title</b>	<b>Course Number</b>	<b>Course Title</b>
AMST110	Intro to African American St	ECON342	Economics of Poverty in US	ENVI622	Internship	HISTSA	Conflict/Change Latin America News
AMST250	Race, Place and Space	ECON361	Intermed Microecon Analysis	ENVI624	Internship	HMCS114	Reporting/Writing
ANTH111	Cultural Anthropology Archaeology/Human	ECON371	Intermed Macroecon Analysis	ENVI634	Preceptorship	MATH135	Applied Calculus Single Variable
ANTH112	Evolution Biological	ECON381	Introduction to Econometrics	ENVISA	ENVI Study away Human Geog of Global	MATH137	Calculus Data Analysis and
ANTH115	Anthropology	ECON426	Intl Economic Development	GEOG111	Issues Introduction to Urban	MATH153	Statistics Intro to Statistical
ANTH239	Medical Anthropology Psychological	ECON444	Honors Seminar	GEOG112	Studies Intro to Geog Info	MATH155	Modeling
ANTH242	Anthropology Comparative Muslim	ECON621	Internship	GEOG225	Systems	MATH236	Linear Algebra Multivariable
ANTH253	Cultures Peoples/Cultures of	ECONSA	Economics Study Away	GEOG241	Urban Geography Regional Geog of	MATH237	Calculus Differential
ANTH258	Africa Indigenous People of	ENVI120	Environmental Geology	GEOG242	US/Canada Regional Geog of Latin	MATH312	Equations Problems of
ANTH294	Arctic Environmental	ENVI130	Science of Renewable Energy	GEOG249	America Geog World Population	PHIL115	Philosophy
ANTH365	Anthropology	ENVI133	Environmental Science	GEOG254	Issues	PHIL125	Ethics Ancient/Medieval
ANTHSA	Field Study Seminar Cell Biology and	ENVI140	The Earth's Climate System	GEOG256	Medical Geography Geog of Environmental	PHIL230	Philosophies
BIOL255	Genetics Lab	ENVI144	Lakes, Streams and Rivers	GEOG258	Hazards	PHYS113	Modern Astronomy Principles of Physics
BIOL265	Cell Biology Biodiversity and	ENVI194	ENVI topics courses	GEOG262	Metro Analysis	PHYS226	I Principles of Physics
BIOL270	Evolution Animal	ENVI215	Environmental Politics/Policy	GEOG294	Remote Sensing Computer Skills	PHYS227	II
BIOL342	Behavior/Ecology	ENVI229	Environmental Ethics	GEOG299	Geography ST	PHYS331	Modern Physics Laboratory
BIOL344	Aquatic Ecology	ENVI231	Environmental Econ/Policy	GEOG341	Urban Social Geography GIS:	PHYS348	Instrumentation Electromagnetic
BIOL345	Field Botany	ENVI232	People/Agriculture/Environ	GEOG364	Concepts/Applications	PHYS443	Theory I

<b>Course Number</b>	<b>Course Title</b>	<b>Course Number</b>	<b>Course Title</b>	<b>Course Number</b>	<b>Course Title</b>	<b>Course Number</b>	<b>Course Title</b>
BIOL346	Biogeography Comp Vertebrate	ENVI234	American Environmental History	GEOG378	Research Methods in Geog	PHYS481	Quantum Mechanics
BIOL365	Anatomy	ENVI236	American Consumer Culture	GEOG488	Cities of the 21st Century	PHYS644	Honors Independent International Politics
BIOL489	Biology Seminar	ENVI237	Environmental Justice	GEOG621	Internship	POLI120	Legal and Political Advocacy
BIOL612	Independent Project	ENVI252	Water and Power	GEOGSA	Cultural Geographies	POLI194	Political Participation
BIOL632	Preceptorship	ENVI280	Environmental Classics	GEOL101	Dinosaurs	POLI202	Policy Issues
BIOLSA	Biol Study Away	ENVI285	Ecology	GEOL103	Geocinema Dynamic Earth/Global Change	POLI205	Legislative Politics Feminist Political Theory
CHEM111	General Chemistry I	ENVI294	ENVI topics courses	GEOL150	History/Evolution of Earth	POLI216	Empirical Research Methods
CHEM112	General Chemistry II	ENVI335	Science and Citizenship	GEOL155	Natural History National Parks	POLI261	Gender and Global Politics
CHEM194	CSI Macalester	ENVI340	US Urban Environmental Hist	GEOL194	Geomorphology	POLI269	Senior Research Seminar
CHEM211	Organic Chemistry I	ENVI365	Environmental Anthropology	GEOL260	Paleoclimate	POLI294	Internship
CHEM212	Organic Chemistry II	ENVI368	Sustain Dev/Global Future	GEOL294	Paleobiology Surface/Groundwater	POLI400	Citizen Participation Introduction to Psychology
CLAS117	Elementary Hebrew I	ENVI392	Envi Educ Theory and Practice Comp	GEOL300	Hydrology	POLI624	
ECON113	Financial Accounting Principles of	ENVI477	Environment/Development Environmental Leadership	GEOL303	GEOL Topics Course	POLISA	
ECON119	Economics	ENVI489	Pract	GEOL394	GEOL study away	PSYC100	
ECON221	Intro to Intl Economics	ENVI490	Envi St Leadership Seminar	GEOLSA	African Environmental History		
ECON333	Global Food Problems	ENVI611	Independent Project	HIST294			

# Appendix II. Summary of Responses to 2012 ES Graduates Survey

## Introduction

The senior survey was distributed to all seniors via e-mail in March and April 2012. Students were asked to complete the survey using the Google Survey tool. We had a 75% return rate compared with 86% in 2011, 100% in 2010 and 67% in 2009. We discussed these surveys on April 18, 2012.

## Results

The survey results are presented at the end of this document. In addition to providing the 2012 student responses to the questionnaire, we will discuss these results relative to results in 2011, 2010 and 2009. Figure 1 shows the ways in which student responses to the questionnaire have changed over time.

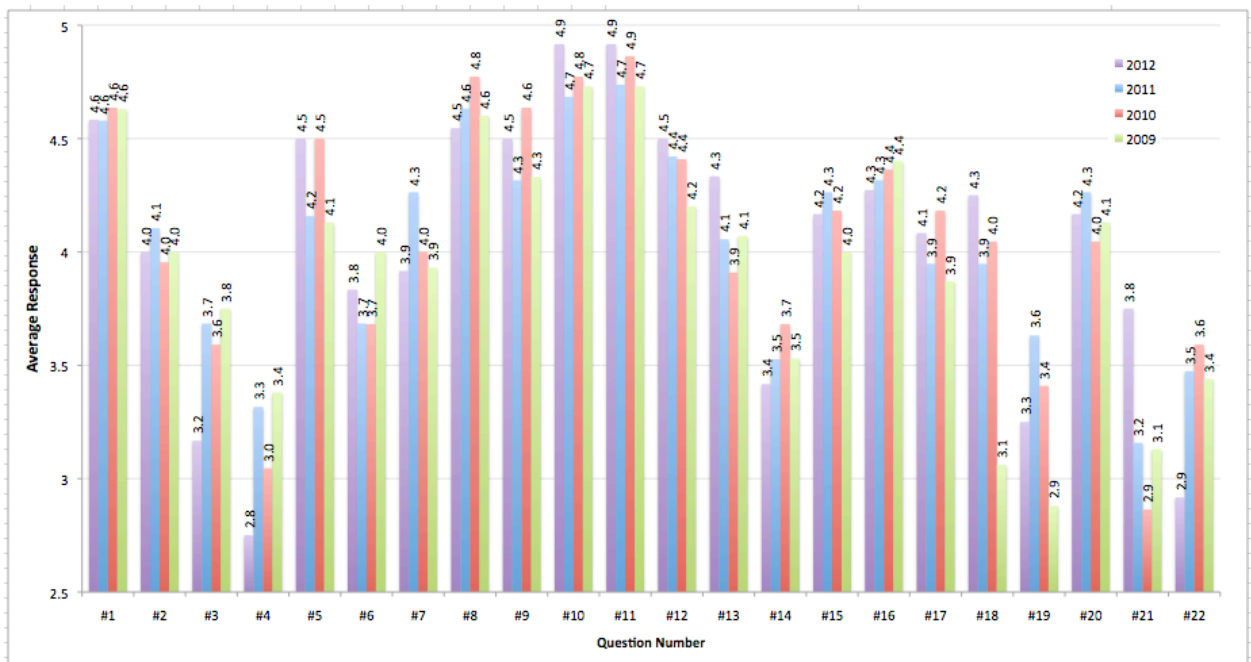


Figure 1 - Average student response to questions on the senior survey

More than half of the questions (17) in 2011 had essentially the same average ranking as 2011 (within 0.3 units on a 5.0 scale), 1 had a higher rating (#21) and 4 had lower ratings (#3, #4, #19 and #22). We noted that one student scored all of the questions with lower ratings with a 1. If that student's rankings were excluded,

then only question 4 and 22 had rankings that had decreased by more than 0.3 units.

We were pleased that the rating of #21 increased (How well exposed were you to careers available with a professional interest in ES (NGO, government, industry or business?)). We believe that much of this is due to an effort to bring in more individuals with these types of interests in EnviroThursday and especially due to the implementation of the required Leadership Practicum/Seminar course.

The response to Question 4 (How confident are you that you could describe the major international policies related to these issues?) continues to concern us. We noted in our last few reports that students' confidence in understanding international environmental policies has been low (<3.5) and the decreasing score is worrisome. For our current seniors many had a faculty member other than Roopali Phadke as their instructor for Environmental Policy and Politics, since Roopali had both her pre-tenure and tenure sabbaticals during this time period. While Roopali includes both US and international policy in her introductory course and it is not clear that her replacements provided much on international policies. We will continue to monitor this issue and will discuss it at our upcoming department retreat later this summer.

The decline in response to Question 22 (How well exposed were you to careers available to people with an academic interest in ES (masters or doctorate?)) may be in direct response to the fact that we brought in more speakers in EnviroThursday with an applied focus which we believe partially lead to the increase in ranking of Question #4 (see above). It is clear we have yet to find the right "balance" in the EnviroThursday presentations. We are making an effort to address this. For example, by including speakers in our Environmental Leadership Practicum "career evening" who are currently in grad school or who have recently completed an advanced degree.

As in the past couple of years we are still concerned with student rankings of Question #14, and the apparent lack of confidence that they could design an empirical study that tests or explores a basic scientific question important to environmental problem solving. We have tried to introduce some labs in ENVI 133 and 140 that would allow students to design an experiment and make them more specific to hypothesis testing and we will continue to make changes to these labs and monitor this issue.

As in the past couple of surveys most students were satisfied with the breadth of their program (Question #18) but they were less satisfied with the depth. Question 19 (the depth question) had been showing that students' satisfaction with the depth of their experience had increased but it took a turn down again this year. We had hoped that our revised curricular requirements (which this class was not yet required to meet, but many did) would allow us to continue our progress in the area

of “depth.” Also as a department we will continue to do more to try to explain the importance of interdisciplinarity and how that provides a different type of “depth” than specialization does.

When asked about which additional courses should be required for the major (Question #23), the answers were relatively scattered as in the past but similarly to past surveys many students suggested Environmental Justice. Once Chris Wells come back from sabbatical he will offer this course on a more regular basis. While it is unlikely we will make this a required course, the more regular offering will make it available to more students. The other suggested required course was Climate Science. Students do have the option now of taking this as one of their required environmental science courses. Now that we have a tenure-track line in climate science this course should be available on a regular basis.

When asked which course they wished they had taken while an ES major (Question #24), again the answers were scattered. It was nice to see that a number of students had “heard good things” about a range of courses that they didn’t take. Taking the responses to Question #24 (what should be required) and this question we continue to discuss the roll of economics in our curriculum. As mentioned earlier, last year we met with Profs. Amy Damon and Sarah West of the Economics Department to discuss making Principles of Economics more “environmental friendly.” We now count their sections of Principles as counting towards the social science distribution in ES. Unfortunately the availability of their sections of Principles of Economics is something we can’t count on. There are a large number of students at Mac taking Principles and next year Amy Damon is not teaching a section while Sarah West’s section is a first year course. We will continue to discuss these issues with member of the Economics Department.

When asked what course(s) do you think are missing from our curriculum that you would like to see offered in the future (Question #25), again the answers were varied. We noted interest in courses related to food and international policy.

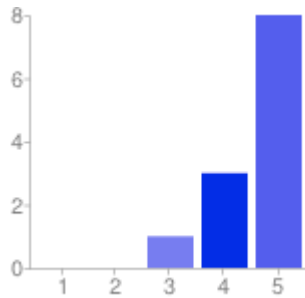
When asked what courses should be dropped from the curriculum (Question #26) there were a range of answers but no overwhelming consensus. As we indicated last year there were some students that felt Environmental Classics could be dropped. Prof. Manning has revamped the course, and we are doing our best to encourage students to take this earlier in their ES career. Course evaluations from this year were significantly better and thus future seniors are less likely to suggest that this course be dropped.

Finally, when asked if they had additional comments (Question #27) a number of students shared their thoughts. While we don’t see any common thread among these comments, we consider them all important. We were glad to see that students recognized that we had revamped the curriculum and they felt it was stronger than when they started. If there was any one comment that struck us it was the comment from student #4 that talked about the lack of progression and depth in the curriculum. It is true that many of our students gain “depth” by taking upper level

courses in other departments through their emphasis. Since many of these courses are not strictly “environmental” in some cases, it may seem to students that they are not getting the depth they would like. Given the limited number of faculty in the ES department we must rely on other departments. We will encourage our partners to hire faculty with environmental expertise in their discipline. Over time, if departments cooperate, we should be able to build a deeper curriculum for our students.

## Summary of Responses to 2012 ES Graduates Survey

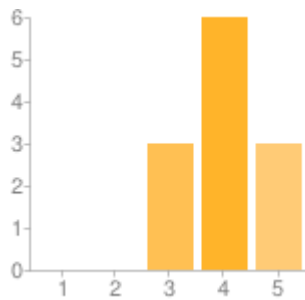
1. How confident are you that you could list the major environmental issues facing the world today?



1 - Not at All	0 0%
2	0 0%
3	1 8%
4	3 25%
5 - Very	8 67%

Not at All Very

2. How confident are you that you could describe the history of how these issues arose?

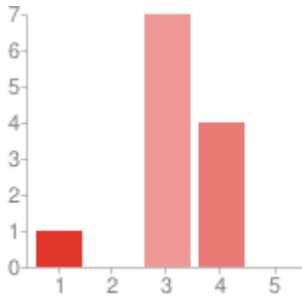


1 - Not at All	0 0%
2	0 0%
3	3 25%
4	6 50%
5 - Very	3 25%

Not at All Very



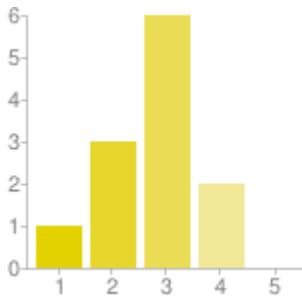
3. How confident are you that you could describe the major U.S. policies related to these issues?



1 - Not at All	1	8%
2	0	0%
3	7	58%
4	4	33%
5 - Very	0	0%

Not at All                      Very

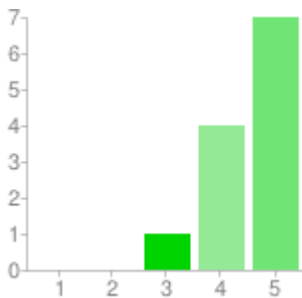
4. How confident are you that you could describe the major international policies related to these issues?



1 - Not at All	1	8%
2	3	25%
3	6	50%
4	2	17%
5 - Very	0	0%

Not at All                      Very

5. How confident are you that you could describe issues of social justice related to these issues?



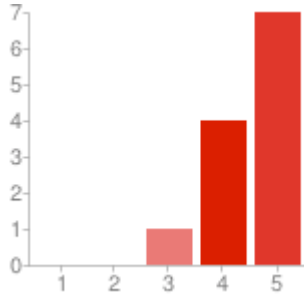
1 - Not at All	0	0%
2	0	0%
3	1	8%
4	4	33%
5 - Very	7	58%

Not at All                      Very



All

9. How confident are you that you could evaluate the quality of the information you have gathered?



1 - Not at All 0 0%

2 0 0%

3 1 8%

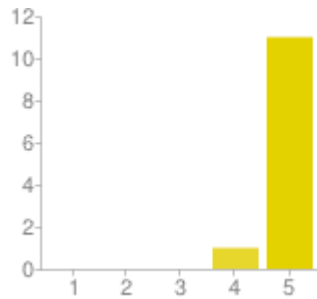
4 4 33%

5 - Very 7 58%

Not at All

Very

10. How confident are you that you could connect your learning in ES to other areas of study?



1 - Not at All 0 0%

2 0 0%

3 0 0%

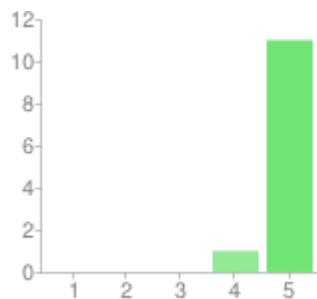
4 1 8%

5 - Very 11 92%

Not at All

Very

11. How confident are you that you could think in an interdisciplinary manner?



1 - Not at All 0 0%

2 0 0%

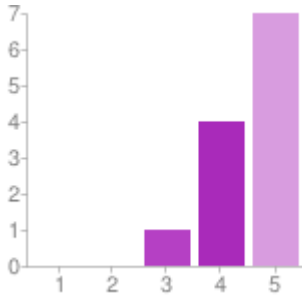
3 0 0%

4 1 8%

5 - Very 11 92%

Not at All Very

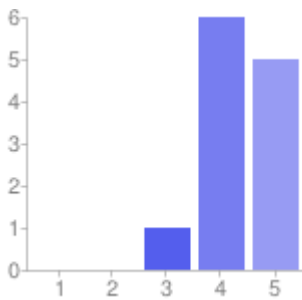
12. How confident are you that you could help a group achieve a desired outcome in a collaborative project?



1 - Not at All	0 0%
2	0 0%
3	1 8%
4	4 33%
5 - Very	7 58%

Not at All Very

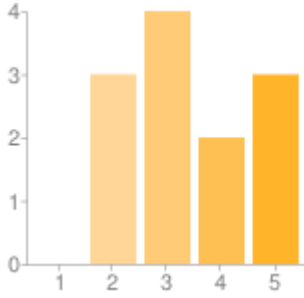
13. How confident are you that you could develop a strategic plan to identify and implement local solutions to an environmental problem?



1 - Not at All	0 0%
2	0 0%
3	1 8%
4	6 50%
5 - Very	5 42%

Not at All Very

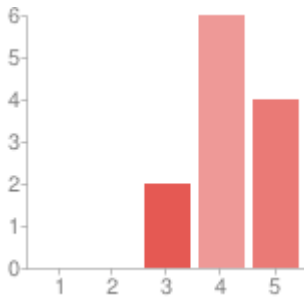
14. How confident are you that you could design an empirical study that tests or explores a basic scientific question important to environmental problem solving?



1 - Not at All	0 0%
2	3 25%
3	4 33%
4	2 17%
5 - Very	3 25%

Not at All Very

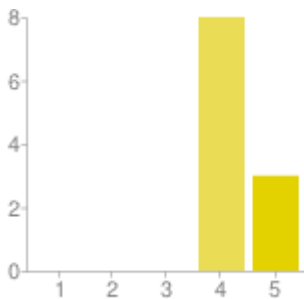
15. How confident are you that you could deliver an effective presentation at a conference?



1 - Not at All	0 0%
2	0 0%
3	2 17%
4	6 50%
5 - Very	4 33%

Not at All Very

16. How confident are you that you could work effectively in an organization, government agency, or business dealing with environmental issues?

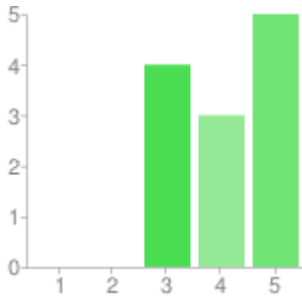


1 - Not at All	0 0%
2	0 0%
3	0 0%
4	8 73%
5 - Very	3 27%

Not at All Very

17. How confident are you that you could make a case for your acceptance to a

graduate program to advance your education?

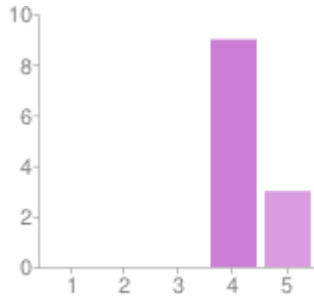


1 - Not at All	0	0%
2	0	0%
3	4	33%
4	3	25%
5 - Very	5	42%

Not at All

Very

18. How satisfied are you with the breadth of your education in ES?

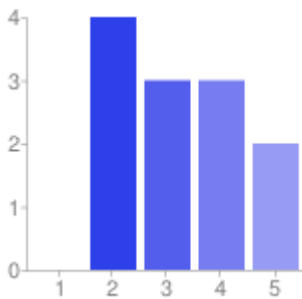


1 - Not at All	0	0%
2	0	0%
3	0	0%
4	9	75%
5 - Very	3	25%

Not at All

Very

19. How satisfied are you with the depth of your education in ES?



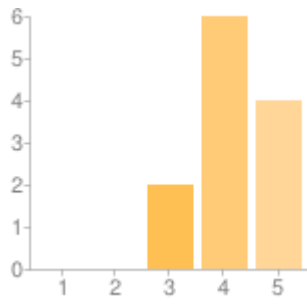
1 - Not at All	0	0%
2	4	33%
3	3	25%
4	3	25%
5 - Very	2	17%

Not at All

Very

20. How well exposed were you to the different disciplines of ES (humanities,

science, social science)?



Not at All

Very

1 - Not at All 0 0%

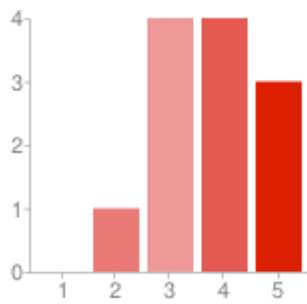
2 0 0%

3 2 17%

4 6 50%

5 - Very 4 33%

21. How well exposed were you to careers available with a professional interest in ES (NGO, government, industry or business)?



Not at All

Very

1 - Not at All 0 0%

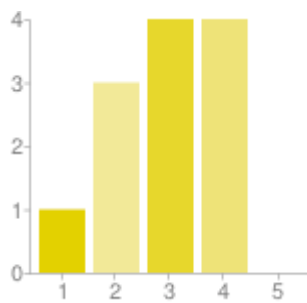
2 1 8%

3 4 33%

4 4 33%

5 - Very 3 25%

22. How well exposed were you to careers available to people with an academic interest in ES (masters or doctorate)?



Not at All

Very

1 - Not at All 1 8%

2 3 25%

3 4 33%

4 4 33%

5 - Very 0 0%

Student	23. What course(s) do you think the department should require all ES majors to take and why?	24. What currently offered course(s) do you WISH you had taken while majoring in ES and why?
1	Environmental Justice should be required, because of the history of elitism in environmental issues (i.e. preservation), it is very important to recognize the impacts of environmental issues for the everyday lives of people at an environmental disadvantage.	More envi science/ renewable energy courses. Though my ES route started our more biology based, I wish I had been involved in a more strictly environmental science class.
2	Water and Power is a really interesting class that allows you to see policy issues both local and international. We discussed and researched the issues and benefits of dam projects, wind power and more. US Urban Environmental History is an exceptional course not just because it was taught by Chris Wells, I like the perspective of city issues and the mix of book and articles discussed.	Consumer Nation, this course sounds really interesting, the idea of materialism and the consumerism by the US that we can attribute to wasteful practices that add to environmental issues. Car Country, looked like an interesting course taught by Chris Wells and is his specialty, as he wrote a book about American Car culture.
3	Classics, Environmental Justice, American Environmental History. These were the most helpful in understanding the contexts in which environmental issues have evolved and morphed, as well as the current standing.  I also think principles of econ was an extremely valuable parallel to an environmental education.	environmental policy, I think if any aspect of my curriculum was lacking, it was the ability to translate idealism into policy.
4	<p>Earth's Climate System and/or Climate &amp; Society            *ES students really need to be able to understand the misconceptions and articulate the major topics of controversy surrounding climate change.            *Climate science is the foundation for a lot of environmental work. Knowing where our data comes from &amp; why we trust it (and don't sometimes) makes informed decision making possible.</p> <p>A GOOD stats. class            *I found my stats class completely useless. It was at a level lower than my high school stats class. At Mac, we did little to no real problem solving that related to any of my academic environmental/social questions.            *I've found myself wishing (at work, at school, during research, &amp; in looking at job applications) that I felt more confident about my statistics ability.</p> <p>Environmental Justice            *This class includes a lot of the history that Environmental History does not talk about. I learned a lot about my country in this class.            *The course provides a very important framework for looking at ES issues and provides a basis for students to analyze social aspects of what are sometimes more traditionally thought of as environmental.            *It's one of the few classes in the ES Dept (that I know of) that effectively addresses issues of race, gender, and class.</p> <p>Envir History OR Envir Politics &amp; Policy            *There is a lot of thematic overlap. I enjoyed both classes and thought both were important but didn't learn a lot the second time around.</p> <p>Senior Seminar</p>	<p>US Urban Environmental History - I'm curious about cities from a more geography point of view, and I would have loved to take this course with that in mind. I also didn't enjoy American Environmental History as much as I had expected, and I wanted the chance to take another class with Chris because students speak so highly of him.</p> <p>Economics of Global Food Problems - I wouldn't have wanted to take it for credit - but rather to understand how economists think about these questions, so that I, in another specialty, could ask intelligent questions and have some background.</p> <p>Advanced GIS Courses - they're so practical! I also really enjoy making maps and using them to solve problems. I wish, however, that I could move beyond the intro material to take Remote Sensing, Urban GIS, and especially Geovisualization.</p>



	Internship	
5	Environmental Justice, Global Environmental History, and Environmental Politics & Policy.	I wish I could have taken Car Country, but was unable to do so due to a conflict. This class would have been extremely relevant to me due to my specific curriculum. I have had a particular focus on materialism and elitism in the modern environmental movement, and I am very interested in how social injustices have arisen throughout the course of our country's environmental history.
6	Global Climate Change- This course gives students a really good grasp of all of the science and debate going on. I felt confident talking with other Mac students, adults, and family from home about the data from climate change after this course.  Senior Seminar that has to be in E.S. (instead of letting Geography count)	I wish I took Environmental Justice, as I often face people telling me that ES majors care more about the environment than people, and I wish I had more EJ examples to give them
7	Principles of economics- I may be slightly biased as a double major in economics but capitalism gets blamed for a lot of environmental ills and I think it would truly improve ES classroom discussion if students understood more of what economics is really about instead of just the media or environmentalists' portrait of the discipline. Economics is a very useful tool for approaching all kind of problems including environmental ones.	Water policy, more biology an intro level course perhaps, environmental justice, envi development... so many more. Being a double major means class times were very restricted!
8	Environmental Politics and Policy: it's extremely important to understand and be aware of the laws that influence and impact the environment. It's hard to work in any sector without understanding these laws and how they came about.	
9	I think that the department should require all ES majors to take more science classes in order to have a better idea of the science behind sustainability and conservation.	Psychology of sustainable behavior. I have heard great reviews about this class from multiple people. Plus, the social aspect of environmentalism is very interesting to me.
10	I believe the core requirements of Environmental Science, Environmental History, and Environmental Politics and Policy are a good set of requirements because they cover the science, policy, and humanities aspects.	Economics of Global Food Problems -- as an Economics double major, I thought that class looked really interesting, it just didn't fit in my schedule. Introduction to GIS - I think this is a really useful skill to have, but between completing two major I didn't have time to take it.
11	The three intro courses, senior seminar, and the internship class. They all provide a really solid foundation for ES students.	Environmental Economics and Policy: I heard great things about this class, and Prof. West, but it never fit into my schedule. Now, seeing how much more if available to you after college with a more econ-heavy background, I wish I had taken this.  Water and Power: It sounded fascinating, but Roopali was on sabbatical a lot while I was at Mac so it was only offered once.  Imperial Nature: My ES education focused on domestic issues, and this could have been a great compliment to those courses.
12	All that are currently required.	

Student	25. What course(s) do you think are missing from our curriculum that you would like to see offered in the future and why?	26. What course(s) do you think should be dropped as required for the ES major and why?
1	Environmental classics could have more documentary film influence for more of a contemporary analysis.	I would suggest more leniency with the internship, that a summer internship could be counted, but not have students pay for summer credit hours, this is an inconvenient cost at a time when students are most able to give their all and gain more knowledge from an internship.
2	International Policy and Environmental issues (less local US focus) I wish that even more international environmental issues were discussed overall. There was only brief discussion about environmental problems abroad in Water And Power course.	Environmental Classics, this course is not that interesting for all majors, and many of the readings are also covered/overlap with the other course readings that I took. I felt that I had already read a lot of the works we covered, and did not gain that much in knowledge of Environmental histories/perspectives/writings.
3		none that I can think of.
4	<p>Statistics for ES majors.</p> <p>Climate science was missing - now it isn't :)</p> <p>Continue to offer classes in environmental education.</p> <p>It's only been offered once so far (in the past 4 years) but teaches valuable applicable skills, offer access to internships, and give students opportunities to apply many types of knowledge. It also gives us opportunities to interact with students from other majors, which is rare in ES classes and a big opportunity for learning (and recruiting students to the major).</p>	<p>Environmental Classics</p> <p>*I haven't met a single ES student who was in favor of this requirement; I do know people who dropped the major because they were discouraged after this class. I understand the rationale behind it, but I don't think it's important enough to require.</p> <p>*I don't think I was able to learn or apply knowledge in this class. Discussions were frustratingly vague and skimmed over the toughest, most interesting issues. Most of what I gained was pure enjoyment of the reading material, which is valuable, but again not enough to require the course.</p>
5	I would like to see a course dedicated to emerging grassroots movements in urban areas like Detroit, Milwaukee, and New York. I think there should be a class devoted to the history and specific contexts of these efforts so that students hoping to participate in urban rejuvenation understand the particular racial and economic tensions present in these areas and how best to be of assistance.	There aren't any courses in particular that I think should be dropped -- however, I would recommend creating methodology courses that are more relevant to the major.
6	A course all about the political ecology of food. Politics and Policy touched on this, and I took Economics of Global Food Problems, but I know of schools that have whole courses devoted to this topic.	None.
7	I would love to see more internationally focused courses on development and world environmental problems. I would also love to see more classes on clean energy and energy focused issues (though Doyle's class is a great start!).	<p>The required courses were the only time in the major I actually took class with any other ES students so I always appreciated them. I especially liked environmental classics and American envi history. They introduced me lots of new literature and ideas and helped me feel an ES community which was very much lacking otherwise. I would not drop any of these classes.</p> <p>However I would appreciate a greater diversity of capstone options (not just geography focused) and a spring semester capstone alternative to the senior seminar.</p>
8		Environmental Classics: I do agree that it's important to be familiar with environmental canons and how they influenced the environmental

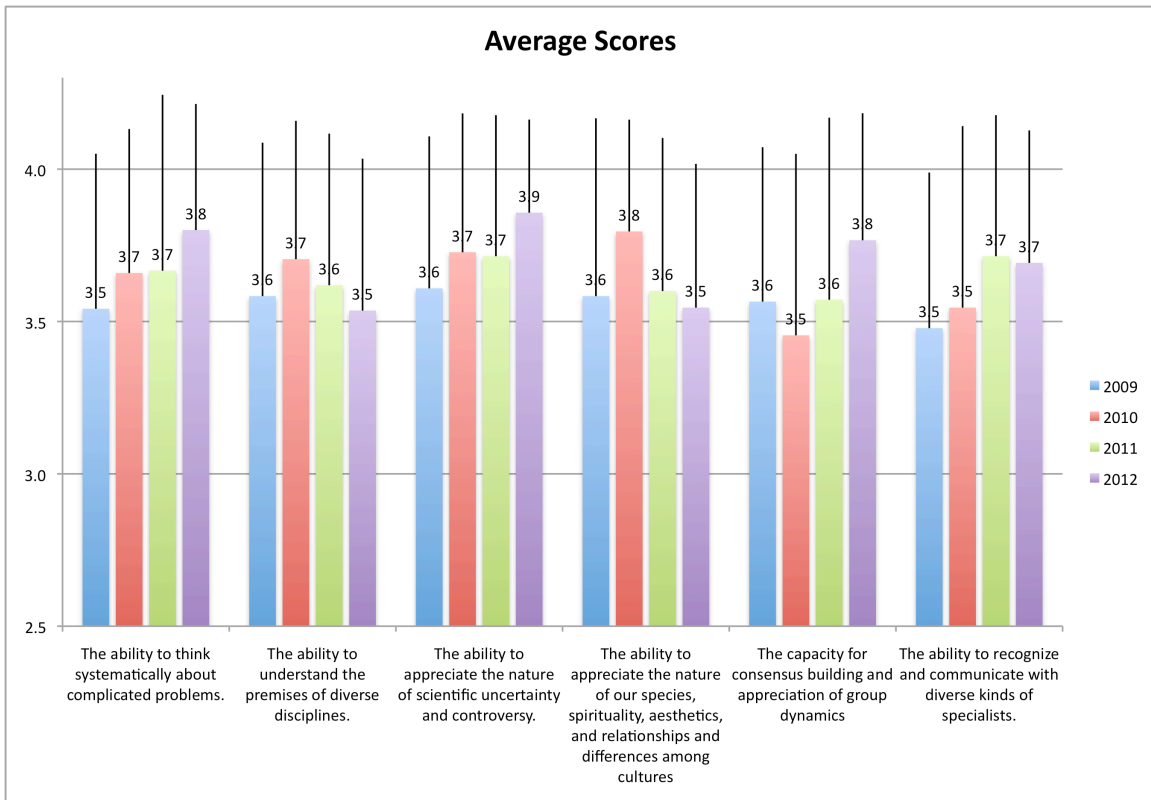
		movement throughout history but an entire class devoted to them was difficult for me. I think rather than this being a class that es majors take together it could be something like environmental politics and policy.
9	(see answer to 23) I would also like to see environmental education become a more permanent part of the offered classes.	None.
10	I cannot name specific courses, but there are very few upper level environmental science courses in the department. Once you get past the intro-level science courses (Earth's Climate System, Science of Renewable Energy, Ecology), there are few specifically environmentally related science class offerings.	Environmental Classics. I understand the desire to have people become acquainted with environmental literature, but the class did not seem to resonate with most people. Especially for those who are not focused on humanities, it seemed like an additional humanities requirement where that wasn't necessary. Why not have other science or policy requirements, too?
11	More stuff on international history and policy (especially as it relates to Environmental Justice concerns) would have been great.	Environmental Classics. I don't quite see how it fits in with the rest of the education, especially since it isn't taught by an English professor anymore. For me, this was my least favorite class of the ES major, as it didn't build much on anything I had learned from intro courses. I think the role of this course needs to be structurally rethought.
12		None.
<b>Student</b>	<b>27. Do you have any additional comments you would like to share?</b>	
1	It seems that, since requirements have changed, it may be even more difficult for ES students to double major. I have found my double major (ES, Geography) and additional concentration to be very complimentary, and would like others to be able to share in this interdisciplinary quality of ES. I would also suggest changes to the conviviality of the ES department, as I don't feel very grounded in that department, and feel that I don't know many of the majors.	
2	I do not think that some of the Required Courses should NOT be night courses, instead these required should be offered at a variety of times/semesters. I found it difficult as an athlete to not have conflict with a night class and games. Ex) Environmental Classics and the Junior Seminar courses. Overall, I had a really great experience with this major and my education at Mac. I like the flexibility allowed in designing my ES major core (sustainable design), I was able to combine all of my interests.	
3	I've really enjoyed my time in the department, and the professors have been great!	
4	I was really frustrated with the requirements of my year's major. They have since been changed, and I think the changes are good ones.  I felt that there was no opportunity for advancement within the ES major. There is little to no progression for students from 100 through upper 300 level classes. All of my upper level classes are in another department.  There was also little development within courses. Maybe this speaks to the excellent caliber of ES classes I took my first year, but I felt that I was rarely pushed beyond that point in the ES classes.	
5	I have greatly enjoyed my freedom to mold my curriculum to fit my personal academic interests, a privilege which I believe is somewhat unique to the ES department. Thank you!	
6		
7	I appreciate the flexibility around major requirements that allowed me to get both my majors in and still go abroad. The flexibility truly made it possible for me to stick with this major and continue to study my interests.	
8		

9	No.
10	Nope.
11	
12	

### Appendix III. Environmental Studies Senior Outcomes Summary - 2012

As part of the Environmental Studies Department annual assessment program, we used the outcomes assessment below to measure the progress our majors made during the course of their education at Macalester. As part of our Assessment Plan development, we decided to have each student’s adviser initially fill out the outcomes assessment form, and then we had all faculty in the department meet to discuss these forms.

Not all of the Environmental Studies graduates have advisers that are members of the ES Department. Since a number of our students are double majors (their second major often being in the area of their ES Core) they often have faculty member from that department as their adviser. Usually these advisers teach cross-listed courses in ES and are members of the ES supporting faculty. Some of these advisers felt uncomfortable providing these data (although they did provide a good deal of the data) and thus members of the department provided rankings in areas where they had the most knowledge concern a student’s mastery of an outcome. For one student there was insufficient knowledge to provide a score in one area of that student’s mastery. Figure 1 shows the results of our ranking of students’ mastery of outcomes based on the rubrics detailed in the outcomes assessment form.



**Figure 1 -Senior Outcomes Assessment – Comparing 2009, 2010, 2011 and 2012. Bars are one standard deviation.**

On the whole the ES Department was quite pleased with the mastery of our graduates. We found the average mastery to be quite high in all areas. We found ourselves being somewhat conservative in rating students at the highest level of mastery, retaining that rating for the more exceptional students. For most outcomes our 2012 ratings were consistent with earlier ratings. The rankings may be a bit lower since we are becoming more comfortable with the rubrics and thus are having higher expectations for our students. As in previous years, we had the most difficulty assessing the students' ability to master "The ability to appreciate the nature of our species, spirituality, aesthetics and relationships and differences among cultures."

This is our fourth year of conducting the outcomes assessment. We have committed to continuing this process for another year and then revisiting our expected outcomes for our students.

Student Name \_\_\_\_\_

<b>Learning Objectives</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level achieved</b>
The ability to think systematically about complicated problems. (based on written work and presentations)	Treats related ideas or data as unrelated, or draws weak or simplistic connections	Begins to establish connections and perceive implications of the material	Brings together related data or ideals in productive ways, thoroughly discusses implications of material	Develops insightful connections and patterns that require intellectual creativity	
The ability to understand the premises of diverse disciplines. (based on written work and presentations)	No connections to other disciplines.	Limited or forced connections to other disciplines.	Explores connections to other disciplines.	Meaningful and effective connections to other disciplines.	
The ability to appreciate the nature of scientific uncertainty and controversy. (based on written work and presentations)	Doesn't acknowledge that there is uncertainty or controversy.	Simply reports what one side or the other says with no discussion.	Acknowledges differing points of view within the scientific community, but overlooks or misrepresents some important points of view.	Is aware of and acknowledges differing points of view within the scientific community, and uses reasoned arguments to explain why he or she has adopted a particular view.	

<b>Learning Objectives</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level achieved</b>
<p>The ability to appreciate the nature of our species, spirituality, aesthetics, and relationships and differences among cultures</p> <p>(based on written work and presentations)</p>	<p>Does not recognize the impact of human nature, spirituality, aesthetics and cultural knowledge and is unable to formulate clearly contextual analysis.</p>	<p>Recognizes the impact of human nature, spirituality, aesthetics and cultural knowledge but is unable to formulate a clear contextual analysis.</p>	<p>Recognizes the impact of human nature, spirituality, aesthetics and cultural knowledge and explains it using contextual analysis.</p>	<p>Recognizes the impact of human nature, spirituality, aesthetics and cultural knowledge and explains it using contextual analysis that addresses the relationship among different contexts.</p>	
<p>The capacity for consensus building and appreciation of group dynamics</p> <p>(based on group work)</p>	<p>All group members have different perspectives and are not willing to listen to those of the other group members. Bickering and miscommunication frequently occur.</p>	<p>Some members' perspectives are heard more frequently than others. No attempt is made to draw out the opinions and viewpoints of more "silent" group members.</p>	<p>All members are comfortable and satisfied with the means of making project decisions. However, not all members have a voice in the way those decisions are made.</p>	<p>All members are comfortable and satisfied with the means of making project decisions. All group members have a voice in decisions, whether they are finally made by the consensus of the group as a whole, or a leader or subcommittee. Decisions are made rapidly and efficiently.</p>	



<b>Learning Objectives</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level achieved</b>
The ability to recognize and communicate with diverse kinds of specialists. (based on group work)	Several of the group members demonstrate an inability to work or communicate with others of differing knowledge and abilities. The members' work reflects apathy or callousness towards the feelings of others. As a result, group cooperation breaks down.	Some of the group members have difficulty adjusting communications to accommodate persons of diverse knowledge and sensitivities. Members do little to encourage respect in others for individual differences.	Most of the group members show the ability to communicate with persons of diverse knowledge and sensitivities. Each member respects the feelings of others.	Group members demonstrate insight concerning the feelings and levels of knowledge of the other members and exhibit this insight while communicating. Each respects individual differences and sensitivities of the others.	

Some rubric language provided by David Blaney, Political Science Dept. Macalester College.

Aesthetic and spirituality rubric derived from <http://www.mdc.edu/learningoutcomes/documents/Group4Rubric.pdf>.

Scientific uncertainty and controversy rubric derived from <http://uteach.utexas.edu/ResearchMethods/CourseRubric.pdf>.

Group dynamic rubrics derived from [http://dhc.ucdavis.edu/faculty/seminarfaculty/rubrics/Group\\_Dynamics\\_Rubric.doc](http://dhc.ucdavis.edu/faculty/seminarfaculty/rubrics/Group_Dynamics_Rubric.doc)