Mission/Purpose

The mission of the Master of Science program in Environmental Science is to provide a rich and rewarding setting in which students and faculty can develop and communicate innovative and practical solutions to present and future environmental challenges, with a focus on urban and coastal issues.

Student Learning Outcomes, with Any Associations and Related Measures, Achievement Targets, Findings, and Action Plans

O 1: Broad understanding of env sci, incl theory/applic
Possess a broad understanding of environmental science, including theory and practical application

Related Measures:

M 1: ESCI 5480 paper/presentation
Broad understanding and practical application, also ability to accurately describe and assess environmental research orally and in writing will be measured by ESCI 5480 Environmental Assessment paper and presentation grades

Achievement Target:
80% will earn an A on both paper and presentation

Findings (2007-2008) - Achievement Target: Met
93% (14/15) earned an A on the paper and presentation assignment in ESCI 5480 for Spring 2008.

Findings (2006-2007) - Achievement Target: Met
6/6 (100%) of the students earned a combined score of 90 or above on the paper and presentation.

M 2: ESCI 5314 Biogeochem Processes exam grades
Broad content will be measured for Thesis-Option by ESCI 5314 Biogeochemical Processes final exam grades

Achievement Target:
50% of students will earn A on ESCI 5314 final exams. This presumes a rigorous curriculum; the prior 2006-07 target of 70% of students earning an A on the final exams was too high to reasonably expect attainment.

Findings (2007-2008) - Achievement Target: Met
4/7 (57%) of students earned an "A" in final exam for ESCI 5314. This presumes a score of 85 or better is an "A" as indicated by the rounding curve for the final course grade.

Findings (2006-2007) - Achievement Target: Not Met
Only 2/6 (33%) of the students earned a grade of A on the ESCI 5314 final
exam. This presumes a score of 85 or better is "A" as indicated by the rounding curve for the final course grade.

M 3: ESCI 5302 Adv Env Regs mid-semester exams
Broad content knowledge for the Non-thesis Option will be measured by mid-semester exams in ESCI 5302 Adv. Environmental Regulations
Source of Evidence: Writing exam to assure certain proficiency level

Achievement Target:
80% of students will earn A

Findings (2007-2008) - Achievement Target: Partially Met
In 2007-08 only 71% (5/7) of students earned a score of A on the ESCI 5302 midterm exam. This exam measures broad content knowledge for the non-thesis option.

Findings (2006-2007) - Achievement Target: Met
9/10 (90%) of the students earned a grade of A on the midterm exam.

Related Action Plans:
Advise grad cmtes of grad student leveling needs
Advise graduate committees of need for leveling for incoming graduate students.
For more information, see the Action Plan Details section of this report.

M 4: Thesis or Prof Project Grade
Theory will be measured for Thesis Option by the thesis grade and for Non-Thesis Option through Professional Project grade
Source of Evidence: Senior thesis or culminating major project

Achievement Target:
100% of Thesis Option students will earn A on thesis and 80% of Non-thesis students will earn A on Professional Project

Findings (2007-2008) - Achievement Target: Met
For academic year 2007-08 3 of 3 (100%) of students completing Thesis earned an A. 4 of 4 (100%) of students completing Professional Project earned an A.

Findings (2006-2007) - Achievement Target: Met
For the academic year 2006-07 4 of 4 (100%) of students completing ESCI 5294 Thesis Final Submission earned an A. Two of 2 (100%) students completing ESCI 5397 Directed Research earned an A.

O 2: Enhanced knowledge of specific area of env sci
Posses enhanced knowledge of a specific area of environmental science, including relevant scientific literature, related to their thesis or professional paper

Related Measures:
M 4: Thesis or Prof Project Grade
Theory will be measured for Thesis Option by the thesis grade and for Non-Thesis Option through Professional Project grade
Source of Evidence: Senior thesis or culminating major project

Achievement Target:
100% of Thesis Option students will earn A on thesis and 80% of Non-thesis students will earn A on Professional Project

Findings (2007-2008) - Achievement Target: Met
For academic year 2007-08 3 of 3 (100%) of students completing Thesis earned an A. 4 of 4 (100%) of students completing Professional Project earned an A.

**Findings (2006-2007) - Achievement Target: Met**
For the academic year 2006-07 4 of 4 (100%) of students completing ESCI 5294 Thesis Final Submission earned an A. Two of 2 (100%) students completing ESCI 5397 Directed Research earned an A.

**M 0: Thesis or Prof Project grade**
Theory and specific knowledge will be measured for Thesis Option by the thesis grade and for Non-Thesis Option through Professional Project grade

Source of Evidence: Capstone course assignments measuring mastery

**Achievement Target:**
100% of Thesis Option students will earn A on thesis and 80% of Non-thesis students will earn A on Professional Project

**Findings (2007-2008) - Achievement Target: Met**
100% (3 of 3) of Thesis Option students earned an A on thesis and 100% (4 of 4) of non-thesis students earned an A on Professional Project.

**O 3: Be able to describe/assess env research orally/wri**
Have the ability to accurately describe and assess environmental research both orally and in writing.

**Related Measures:**

**M 1: ESCI 5480 paper/presentation**
Broad understanding and practical application, also ability to accurately describe and assess environmental research orally and in writing will be measured by ESCI 5480 Environmental Assessment paper and presentation grades

Source of Evidence: Presentation, either individual or group

**Achievement Target:**
80% will earn an A on both paper and presentation

**Findings (2007-2008) - Achievement Target: Met**
93% (14/15) earned an A on the paper and presentation assignment in ESCI 5480 for Spring 2008.

**Findings (2006-2007) - Achievement Target: Met**
6/6 (100%) of the students earned a combined score of 90 or above on the paper and presentation.

**M 5: ESCI 5101 Env Res Seminar assignments**
Ability to accurately describe and assess environmental research both orally and in writing will be measured by ESCI 5101 Env Research Seminar assignments

Source of Evidence: Writing exam to assure certain proficiency level

**Achievement Target:**
80% will earn grade of A

**Findings (2007-2008) - Achievement Target: Met**
For 2007-08 100% (9/9) of students in ESCI 5101 Seminar earned a grade of A.

**Findings (2006-2007) - Achievement Target: Not Met**
3 of 4 students (75%) earned a grade of A in ESCI 5101.
Details for Action Plans Established This Cycle

Advise grad cmtes of grad student leveling needs
Advise graduate committees of need for leveling for incoming graduate students.

Priority: High
Target Date: 01/2009
Immediately

Responsible Person/Group: ESCI Coordinator and all ESCI faculty

Additional Resources Needed: None.
Budget Amount Requested: $0

Annual Reports

Executive Summary
The ESCI-MS program curriculum in 2007-08 was in effect one final year before a new curriculum was to be implemented in Fall 2008 to provide a more flexible curriculum to meet student needs. Headcount of majors stayed essentially flat while student credit hours decreased from F06 to F07. The old curriculum required many courses, and the population of students in the program hardly supported offering so many courses. Additional faculty joined the program, diversifying the program faculty research expertise. Also faculty from Harte Research Institute have been well engaged in the program. However, many faculty were stretched thin between multiple programs and could not devote adequate effort to support ESCI program needs. No additional resources are requested for the next year to meet program goals but within the next few years a new faculty position may be required.

Public/Community Service
ESCI is a multidisciplinary program, and the accomplishments of other program faculty are documented through other programs, departments and centers/institutes. ESCI faculty (those not documented by other academic units) participated in 4 local/regional/national training events adn drills, and faculty members also participated in student recruitment events, outreach talks at community events, participation in regional ocan science bowls, etc.

Document:
ESCI Program Scholarly and Service Activities 2007-08

Anticipated Challenges
Challenges will come from faculty spread thin among an increasing number of new science degree programs, and there may be fewer available to do basic committee service to support the ESCI Program. The development of the new CMSS PhD program increasingly focused faculty attention away from the ESCI MS program. Also, the separation of the Life Sciences department from the Department of Physical and Environmental Sciences (in which the ESCI MS program is administratively housed) and increasing demand of LSCI faculty to support programs in that department reduced LSCI faculty support for committee and other service needs of the ESCI MS program. The separation of Life Sciences faculty from the Physical and Environmental Sciences (the department in which the ESCI program is housed) poses a particular challenge in obtaining LSCI support for service needs of the program.

Closing the Loop / Planned Actions
All goals were met for the program regarding student learning outcomes.

Summary of Requested Resources
No additional resources are requested for the next year to meet program goals but within the next few years a new faculty position may be required.

**Administrative Unit Accomplishments**

In terms of graduate student majors the ESCI-MS program decreased slightly. A total of 28 majors were enrolled in Fall07, nearly the same as Fall06 (27 majors). Masters level SCH decreased from 169 SCH (F06) to 139 SCH (F07) and upper-level SCH from 158 (F06) to 181 (F07). No new ESCI faculty lines were added, but some new hires or current faculty in other programs supplemented the ESCI Program faculty support by joining the "Core" or "Auxiliary" ESCI Program faculty body and participating in ESCI program decision-making, service, and other needs. These included Jim Gibeaut (HRI-PENS), Riccardo Mozzachiodi (BIOL), Cherie McCollough (BIOL) and Dave Yoskowitz (College of Business -ECON).

**Teaching Results / Accomplishments**

In terms of graduate student majors the ESCI-MS program decreased slightly. A total of 28 majors were enrolled in Fall07, nearly the same as Fall06 (27 majors). Masters level SCH decreased from 169 SCH (F06) to 139 SCH (F07). No new ESCI faculty lines were added, but some new hires or current faculty in other programs supplemented the ESCI Program faculty support by joining the "Core" or "Auxiliary" ESCI Program faculty body and participating in ESCI program decision-making, service, and other needs. These included Jim Gibeaut (HRI-PENS), Riccardo Mozzachiodi (BIOL), Cherie McCollough (BIOL) and Dave Yoskowitz (College of Business -ECON). One new course Advanced Topics: GIS Applications in Environmental Science (J. Wood, Adjunct) proved popular but otherwise there were few electives offered that year.

**Research/Scholar Activity Accomplishment**

ESCI is a multidisciplinary program, and the accomplishments of other program faculty are documented through other programs, departments and centers/institutes. In 2007-08 the ESCI faculty (those not documented elsewhere through other academic units) including Robert Benson, David Jensen, Ian MacDonald, Alberto Mestas-Nunez, and Philippe Tissot, together authored/co-authored 6 articles in refereed publications, 2 reports, 10 International conference presentations/proceedings/abstracts, 9 national conference presentations/proceedings/abstracts, and 4 local presentations. They also authored 4 other international and 3 local/regional publications/abstracts. Together they were funded for 8 grants from NSF. NOAA, Texas General Land Office, Texas Research Development Fund, and other sources totalling over $760,000.

**Document:**

ESCI Program Scholarly and Service Activities 2007-08