

ENVIRONMENTAL SCIENCE 2019-2025 STRATEGIC PLAN
(10/27/19)

ENVS Purpose: Provide knowledge, skills, tools, and awareness pertaining to environmental quality and human-environment interactions in order to improve and sustain the function of environmental systems and protect human health.

ENVS 2025 Vision: Be a premier center for learning, research and outreach that finds solutions to diverse environmental challenges to improve the quality of all life.

ENVS Mission:

- Educate and train future generations to solve environmental issues at the intersection of biology, chemistry, physics and social sciences.
- Collaborate with industrial and professional partners to identify and apply practical and scientific solutions to current and emerging human - environmental challenges.
- Engage the community, including underserved populations, through extension services and citizen science.

ENVS Shared Values: Improvement of environmental quality and its relation to human health and well-being, and sustainable land and water management, as fostered through cutting-edge instruction, research, and service/extension/outreach activities of the Department.

STRATEGIC GOAL ONE: Be recognized as the premiere unit in Environmental Science at the UA, nationally, and internationally.

A. Current situation (i.e., problem to overcome/opportunity to capitalize on) and gap between current situation and desired situation

There is a significant emerging need to quantify and understand human-environment interactions at local to global scales in order to maintain environmental system function, and human health and well-being. Funding agencies recognize this need and increasingly support large inter- and trans- disciplinary research programs that span basic to applied, and research to education and extension program continua in order to address grand scientific and societal challenges in the areas of land, water and environmental quality and sustainability. Given our focus on land-water systems and interactions strongly impacted by human activity, ENVS has the expertise and experience to lead and/or collaborate on these types of projects.

B. Strategy/ies to achieve goal (list if more than one)

1. Maintain ENVS as a leader in UA-wide and multi-institutional, inter- and trans-disciplinary efforts that collectively span basic-applied-research-extension-education continua to address grand challenges in land, water and environmental quality and sustainability
2. Enhance research capacity and resource base by pursuing faculty development and funding opportunities at the intersection of environmental and human health
3. Expand ENVS activities in resolving and communicating the roles of climate and land-use change, increased urbanization, and energy production on water resources, agricultural soil and water management, food safety, and environmental remediation

C. Actions

1. Develop topical research centers
2. Hire faculty in targeted areas of research and extension
3. Curriculum development in environmental science
4. Translate to broader group of stakeholders ENVS activities and accomplishments

D. Inputs needed to achieve the goal (not limited to financial inputs)

- Physical infrastructure for housing large project personnel, students and collaborators
- Business office function that is enabled to facilitate multi-unit projects
- Extramural and State support for cutting-edge analytical and multi-user facilities
- State support for ENVS faculty replacements and hires
- Stakeholder in-reach on perceived research and extension needs

E. Objective metrics that will be used to track progress towards attaining goal

1. Number and size of large, inter- and cross-department grants
2. Publications, including for stakeholder outreach as well as in peer-reviewed journals
3. Student numbers and success
4. Departmental ranking in Environmental Science
5. Number of stakeholder events and interactions involving faculty

Notes (if any)

STRATEGIC GOAL TWO: UA leader in the direction and provision of the Environmental Science and Sustainable Plant Systems B.S. degree programs.

A. Current situation (i.e., problem to overcome/opportunity to capitalize on) and gap between current situation and desired situation

ENVS (as the Department of Soil, Water and Environmental Science) developed a rigorous, quantitative, and basic science based degree program in Environmental Science. ENVS needs to maintain and expand its role as the leader in the direction and provision of this program.

B. Strategy/ies to achieve goal (list if more than one)

1. Enhance pedagogy of a systems-level approach to environmental science
2. Translate efficiently new knowledge and tools into the curriculum
3. Provide a complement of foundational depth in parent disciplines with effective integration and applied coursework to provide an education that meets future societal demand for solutions to complex environmental problems
4. Provide outreach to and interact with Arizona high schools and community colleges for student recruitment and curriculum coordination

C. Actions

1. Pro-active engagement of allied units offering environmental science-related coursework (e.g., SEES departments, College of Public Health, etc.)
2. Advance the relevance and reach of the Environmental Science and Sustainable Plant Systems majors
3. Develop new courses that bridge the gap between introductory science coursework and more advanced coursework in the ENVS major
4. Update and assess student outcomes, goals, and achievements in a consistent way
5. Enhance student recruitment activities by developing effective linkages with and/or providing assistance to school districts across Arizona
6. Develop a new e-newsletter for the ENVS Department that will be sent to all students, staff, faculty, and alumni.

D. Inputs needed to achieve the goal (do not limit to financial inputs)

- Recognition via novel approaches to student credit hours of multi-unit participation in Environmental Science focal areas.
- Incorporate the wealth of UA-wide activities in environmental science into an exciting, cohesive and dynamic major for UA undergraduates that exposes them to the breadth and depth of the field (as it occurs at UA like nowhere else).

E. Objective Metrics that will be used to track progress towards attaining goal

1. Number of students enrolled in the ENVS degree program
2. Success of undergraduates following graduation
3. Quality of undergraduate performance

Notes (if any)

STRATEGIC GOAL THREE: Direct robust and productive Environmental Science education program for the development of the next generation of professionals and leaders.

A. Current situation (i.e., problem to overcome/opportunity to capitalize on) and gap between current situation and desired situation

ENVS undergraduate and graduate programs are focused mainly on serving traditional on campus students. There is a growing opportunity to provide continuing education and/or degree programs to working professionals seeking to enhance environmental science skills. ENVS is poised to address directly the needs of these non-traditional students through development of instructional programs to reach these students.

B. Strategy/ies to achieve goal (list if more than one)

1. Enhance outreach and enrollment of non-traditional students in ENVS programs
2. Enhance interdisciplinary research and education opportunities
3. Develop instructional structures to facilitate non-traditional student education
4. Increase teaching efficiency by focusing certain teaching efforts on online courses

C. Actions

1. Develop Accelerated MS program
2. Develop online degree options for ENVS B.S. and M.S. programs
3. Pursue microcampus initiatives for the ENVS and SPS degree programs

D. Inputs needed to achieve the goal (do not limit to financial inputs)

- IT, faculty, and technical assistance for effective online course development (such a resource would be of benefit to units CALS-wide)
- Effective marketing and communication to non-traditional students of ENVS expertise and curricula
- Continued incentives to the Department for developing and offering online courses
- Scholarship support for non-traditional students

E. Objective Metrics that will be used to track progress towards attaining goal

1. Number and quality of students in ENVS degree programs
2. Number of non-traditional students
3. Number of online courses and enrollment
4. Measures of ENVS graduate success following graduation

Notes (if any)

STRATEGIC GOAL FOUR: Develop novel funding mechanisms to support updated infrastructure, personnel, and programs.

A. Current situation (i.e., problem to overcome/opportunity to capitalize on) and gap between current situation and desired situation

ENVS requires instructional faculty, startup funding, staff support, and updated infrastructure to achieve the vision and objectives discussed above. We have identified targeted programmatic areas in environmental science that have potential to be funded extramurally, while also supporting the UA's land grant mission. However, salaries and infrastructure require additional funding. Given the diminishing fraction of UA's budget provided by State funds, ENVS will pursue novel external means of support to facilitate development of these positions and infrastructure, meanwhile strengthening ties with local and national stakeholders.

B. Strategy/ies to achieve goal (list if more than one)

1. Develop new revenue streams for department from instructional programs.
2. Cultivate relationships with key stakeholders in Arizona and the nation who recognize the importance of ENVS activities in research, teaching and extension
3. Publicize the research, teaching and extension activities of ENVS to expand the base of departmental support

C. Actions

1. Identify new stakeholders served by ENVS programs
2. Develop enhanced public relations to publicize ENVS activities
3. Develop contacts and outreach to identified stakeholders
4. Involve ENVS alumni and friends in new department activities
5. Implement online ENVS degree programs
6. Develop microcampus programs in environmental science.
7. Develop a new e-newsletter for the ENVS Department that will be sent to all students, staff, faculty, and alumni.

D. Inputs needed to achieve the goal (do not limit to financial inputs)

- University and college level support ensuring endowment funds procured by ENVS and CALS directly support ENVS

E. Objective Metrics that will be used to track progress towards attaining goal

1. Number of endowed chair positions in ENVS
2. Amount of private funding donated to ENVS
3. Number of news and online articles written about ENVS activities and research
4. Number of stakeholders contacted for requests for potential support

Notes (if any)