UF | UNIVERSITY of FLORIDA

Water Institute

2016-2021 Strategic Plan

Photos courtesy of UF/IFAS, SFWMD, & USDA/NRCS.

UF UNIVERSITY of FLORIDA

Water Institute

2016-2021 Strategic Plan

Table of Contents

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu

UF UNIVERSITY of FLORIDA

Water Institute

2016–2021 Strategic Plan

Introduction

Florida's burgeoning human population, and the vulnerability of its water resources to both climatologic and anthropogenic change, make the state a unique living laboratory in which to develop new knowledge and test solutions to global water problems. In recognition of the importance of water issues and the need to address them in an interdisciplinary manner, the University of Florida (UF) established a campus-wide, interdisciplinary Water Institute in May 2006. Since its inception, the UF Water Institute has emerged as a leader in coordinating interdisciplinary research, education and outreach programs.

Scientific, public and political awareness of water issues is growing, emphasizing the need for interdisciplinary research, education and outreach programs that are relevant across local, national and global scales. Understanding complex water issues in a holistic manner and exploring integrated solutions to managing these issues requires a sustained high-level of effort. It calls for bold action to obtain, integrate and share new data; design and conduct comprehensive experiments to further basic understanding; and develop new simulation tools to allow scientists, managers, citizens, and policy makers to explore alternative scenarios of the impacts of climate change, population growth, land-use change, and water management and policy alternatives.

This Strategic Plan outlines the Water Institute mission, vision and goals, along with strategic priorities, tactics and metrics to meet these opportunities over the next five years. This Strategic Plan is aligned with goals, objectives and metrics provided by the University of Florida Goal Task Force in 2015, which aspires for UF to be *"a premier university that the state, nation and world look to for leadership."* As such, this Strategic Plan identifies strategies and tactics to be used in the continued pursuit of preeminence for UF Water Institute programs.

Mission

The UF Water Institute brings together talent from throughout the University and builds internal and external partnerships to address urgent water research challenges; implement innovative interdisciplinary academic programs to train excellent students; and provide state-of-the-art expert assistance and educational programs for external stakeholders.

Vision

Interdisciplinary UF Water Institute Teams comprised of leading water researchers, educators and students develop new scientific breakthroughs; design creative engineering, policy and legal solutions; and pioneer innovative educational programs that are renowned for addressing state, national, and global water problems.

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu

Values

Excellence**:** The Water Institute is committed to provide excellent interdisciplinary water-related research, education and outreach programs that are recognized for their preeminence in Florida, the nation and the world.

Partnerships**:** The Water Institute recognizes the importance of developing strong inclusive partnerships among Water Institute Affiliate Faculty and with external stakeholders to identify and prioritize critical water issues requiring interdisciplinary study.

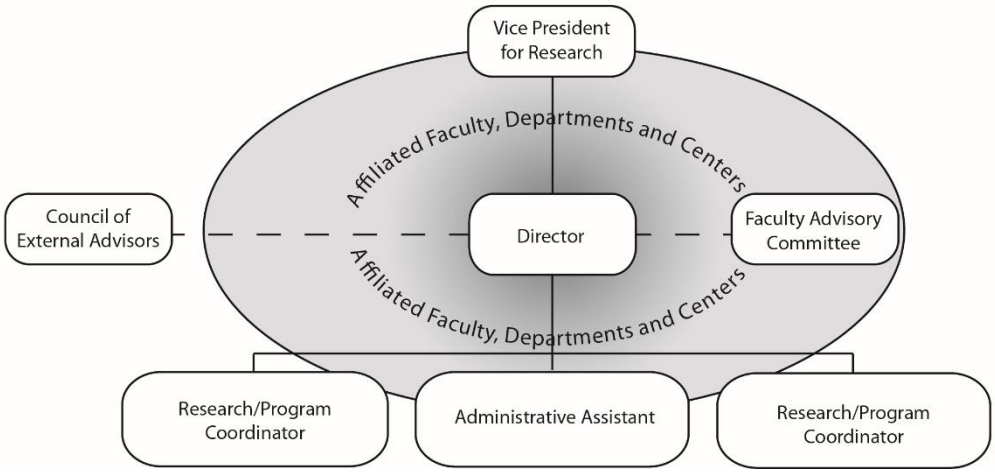
Expertise**:** The Water Institute is committed to developing the basic knowledge, practical experience, and infrastructure required to respond to stakeholders' emerging water issues.

Respect**:** The Water Institute provides services that acknowledge, respect and promote the expertise of all Water Institute Affiliate Faculty, and embrace the personal values, cultures, and socioeconomic context of its diverse external stakeholders.

Organizational Structure

The Water Institute is led by a full-time Director who reports to the Vice President for Research (Figure 1). Two Research/Program Coordinators assist the Director in development, execution and evaluation of Water Institute programs. An Administrative Assistant serves as office accountant, office manager, and website/database developer.

Figure 1: Organizational Chart for University of Florida Water Institute
February 29, 2016



Individual UF faculty affiliation with the Water Institute is through voluntary registration in an on-line database. All registered faculty are considered Water Institute Affiliate Faculty and are eligible to vote on Water Institute governance issues. All Affiliate Faculty members retain their positions in their tenure departments where all administrative and performance review functions are carried out. Currently there are over 200 University of Florida faculty members from more than 65 departments and centers affiliated with the Water Institute.

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu

An internal Faculty Advisory Committee (FAC) for the Water Institute consists of 15 members of the Water Institute Affiliate Faculty. Ten members of the FAC are elected by the Water Institute Affiliate Faculty on staggered 3-year terms. Five members are appointed by the Water Institute Director to ensure balance among disciplines.

An ad-hoc External Council of Advisors consists of speakers who have participated in the Water Institute Distinguished Scholar Seminar Series. These individuals are representatives of leading academic institutions in a wide range of water-related fields, many of whom are National Academy members and two of whom are Stockholm Water Prize winners.

Goals

The UF Water Institute strives to achieve preeminence through successful research, education and outreach programs that:

- Improve basic knowledge of physical, chemical, and biological processes in aquatic systems such as springs, rivers, lakes, estuaries, wetlands, soils and ground waters.
- Enhance understanding of interactions and interrelationships among human attitudes and activities and aquatic ecosystems.
- Develop improved methodologies for water management and policy - including quantity, quality and ecosystem services - based on a foundation of science, engineering, management and law.

Thrust Areas

Thrust areas are thematic cross-cutting initiatives around which Water Institute Affiliate Faculty combine resources to achieve Water Institute goals. Thrust areas represent areas of emphasis in which interdisciplinary collaborations are likely to produce significant progress. The three Thrust Areas where the UF Water Institute will contribute substantially to UF preeminence over the next 5 years are:

Water, Land Use and Ecosystem Health

Objective: Develop basic understanding needed to inform programs and policies to reduce human impact on water quantity, water quality and ecosystem function, for example:

- Linkages among terrestrial and aquatic ecosystems including springs, rivers, lakes, wetlands, estuaries and coastal zones;
- Impacts of land use/land management change and water use/water management change on environmental flows, water quality and aquatic ecosystems; and
- Public willingness to pay for, and producer willingness to accept, innovative water and land management incentive and regulatory programs to protect aquatic ecosystems.

Climate Change, Climate Variability and Sea-Level Rise

Objective: Develop and improve predictive tools that reduce risk and increase resilience of agricultural, industrial, and public water supplies and environmental flows to stressors such as:

- Climate cycles such as El Niño Southern Oscillation and Multidecadal Oscillations;
- Future increases in temperatures and changes in precipitation patterns;
- Sea-level rise; and
- Extreme weather events such as floods, droughts, and hurricanes.

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu

Food, Energy and Water

Objective: Catalyze well-integrated interdisciplinary research at the food-energy-water nexus to provide for a growing demand for food, water and energy while maintaining appropriate ecosystem services, for example:

- Real-time monitoring sensor networks with cyber-enabled interfaces that increase decision-support capability from real-time to decadal time scales;
- Innovative system and technological solutions such as energy-efficient water treatment processes, improved nutrient and irrigation management technologies, alternative crops and cropping systems with improved nutrient and water-use efficiencies, and next-generation urban and agricultural Best Management Practices; and
- Computational modeling platforms to elucidate the economic, food and water security, and ecological tradeoffs of alternative water and energy policies and practices from local to global scales.

Strategies, Tactics and Metrics of Success

The following strategies, with tactics and metrics of success, build on past successes and will enable the UF Water Institute to contribute substantially to UF preeminence over the next 5 years and to achieve Water Institute program goals.

Strategy 1. Enable inclusive interdisciplinary research, drawing on and further developing broad water-related expertise of Affiliate Faculty.

Tactics

- Form and nurture interdisciplinary teams with diverse faculty leadership and representation to obtain and execute large interdisciplinary research grants from state, national, and international funding programs.
- Partner with other UF Centers and Institutes (e.g. Emerging Pathogens Institute, Global Food Systems, Florida Climate Institute, Florida Institute of Sustainable Energy, Center for Public Issues Education) to improve synergies and build more diverse and comprehensive interdisciplinary networks.
- Partner with UF departments across colleges to establish state and/or endowment support for hiring of interdisciplinary water faculty.
- Create and co-host, with departments and Centers, a network of interdisciplinary laboratories and field facilities to support water-related research conducted by Affiliate Faculty.
- Host a monthly Distinguished Scholar Seminar Series to provide venues for interdisciplinary faculty interaction.

Metrics of Success

- Amount of state and/or donor funding obtained to hire new UF water faculty members.
- Numbers and diversity (e.g. disciplinary, gender, racial, ethnic) of faculty, graduate students and undergraduate students participating in UF Water Institute research programs.
- Number and value of interdisciplinary water-related grants and contracts received by Water Institute Affiliate Faculty.
- Number of water-related national, and international awards and fellowships obtained by Water Institute Affiliate Faculty.
- Number of publications and creative works by Water Institute Affiliate Faculty.
- Number of citations and citation index ranking by Water Institute Affiliate Faculty.

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu

Strategy 2. Foster innovative interdisciplinary water education integrating social, natural, and engineering sciences.

Tactics

- Increase number of graduate students and post-doctoral associates involved in interdisciplinary water-related research projects.
- Build the Water Institute Graduate Fellows (WIGF) Program - a competitive grant program supporting thematic interdisciplinary cohorts of doctoral students and their faculty advisors - by securing continued support from UF Schools and Colleges and increased funding from private donors.
- Continue to support the Hydrologic Sciences Academic Cluster (HSAC), an interdisciplinary program that broadens science and engineering skills of students interested in all aspects of water.
- Establish an externally funded Undergraduate Water Scholar/Internship Program by partnering industry such as utilities and environmental consulting firms, state agencies, local governments and private donors.

Metrics of Success

- Number of graduate students and post-doctoral associates involved in interdisciplinary water-related research projects.
- Number of national and international conference presentations, referred publications and scholarly works by graduate students and post-doctoral associates involved in interdisciplinary water-related research projects.
- Number and diversity of faculty and graduate students participating in WIGF and HSAC programs.
- Qualifications of graduate students participating in WIGF and HSAC programs.
- Amount of grant or donor funding obtained for the WIGF Program to supplement the UF contribution.
- Number of successful interdisciplinary proposals submitted by WIGF faculty and graduate students.
- Number of national and international conference presentation, refereed publications and scholarly works by WIGF faculty and graduate students.
- Number and diversity of undergraduates participating in Water Institute Scholar/Internship programs.
- Placement of undergraduate, graduate students and post-doctoral associates involved in Water Institute programs into relevant careers such as positions in government, academia and industry.

Strategy 3. Increase engagement, outreach and public visibility.

Tactics

- Organize seminars and workshops to facilitate coordination and cooperation among Water Institute Affiliate Faculty, students, and stakeholders including academic, industry, governmental, and non-governmental organizations.
- Continue to hold biennial symposia to bring together researchers, engineers, policy makers, water managers, industry representatives, lawyers, students and citizens to consider the

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu

challenges to water resources sustainability; explore solutions for pressing issues; and provide broad-based recommendations for research, education, technology and policies to ensure water resources sustainability for Florida and beyond.

- Conduct funded expert-assistance projects for federal, state and local agencies that address key water-quality and water-supply issues in order to inform policy and Best Management Practices.
- Explore novel and creative outreach mechanisms to increase awareness of water-resource issues such as ways to bridge art and science to create more effective communication tools and reach a broader audience.
- Build externally funded stakeholder engagement and education programs in partnership with UF/IFAS Extension.
- Recognize and promote University of Florida faculty who are making outstanding research, extension, or education contributions in water-related programs.
- Continue the Water Institute Faculty Fellows Awards, which recognize Affiliate Faculty making outstanding water-related research, extension, or education contributions.
- Create and co-host a Visiting Journalist program in collaboration with relevant departments and Centers.
- Maintain and enhance internet databases of Affiliate Faculty, awards and publications to make research-project information and outcomes widely available and easily accessible.
- Maintain and enhance Water Institute communications using the Water Institute web page, listservs, blogs, Twitter, Facebook, and LinkedIn.

<u>Metrics of Success</u>

- Attendance, attendee satisfaction and level of external sponsorships for Water Institute biennial symposia, workshops and Distinguished Scholar seminars.
- Number and type of expert-assistance projects conducted by Water Institute faculty, staff and students.
- Number and type of stakeholder engagement/education programs conducted by Water Institute faculty, staff and students.
- Number of Water Institute faculty, staff, and students engaged in water-related community service projects.
- Number of Water Institute faculty, staff and students participating in leadership positions in professional organizations, government advisory councils, professional review panels and practice guideline committees.
- Number of Water Institute faculty serving as editors, associate editors, or on editorial boards for high-visibility publications.
- Number of visits to the UF Water Institute website.
- Analytics from social media platforms, blogs and communications about UF Water Institute programs and opportunities.
- Number of positive media and national and international news stories about Water Institute educational programs, translational science, and applied research projects and their benefit for the public good.

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu

Resources

The UF Water Institute leverages existing internal resources and continuously seeks additional external resources to pursue the above strategies and tactics in pursuit of UF preeminence. Existing physical resources include the Water Institute office on the 5th floor of Weil Hall, which provides a conference room and office space and equipment for staff, doctoral students and interns.

Funding resources available to pursue strategies and tactics include:

- Base funds from UF for salaries of Water Institute Director and 3 staff,
- UF College provision of Graduate School Fellowships for Water Institute Graduate Fellows program,
- Endowment funds for operating expenses,
- Extramural funding for interdisciplinary grants and projects, and
- Indirect-cost returns for re-investment in Program Initiation Fund Awards.

Additional funding resources being pursued include:

- New gifts and endowments for:
    - Endowed chairs and named professorships,
    - Named Water Institute Graduate Fellows Program,
    - Named undergraduate internships, and
    - Named buildings, labs, computational centers; and
- State Legislative Budget Requests and Congressional Budget Requests to build Water Institute faculty, staff, and facilities.

University of Florida Water Institute, PO Box 116601, Gainesville, Florida 32611-6601
Phone 352-392-5893; Fax 352-392-6855; waterinstitute.ufl.edu