

Department of Geography
College of Earth and Mineral Sciences
The Pennsylvania State University

Strategic Plan
2015 to 2019

Mission

The **overall mission** of the Department of Geography is to conduct theoretical and applied geographic research in a dynamic and responsive manner that educates and inspires students to become critical and committed citizens who contribute to solutions for our planet. Addressing contemporary societal challenges of the 21st Century requires novel approaches to scientific inquiry and education that are uniquely served by the Department of Geography at Penn State. No longer can the global grand challenges of human well-being or environmental sustainability be solved independently. Rather, coupled approaches that unite **core strengths** in natural, social, human-environment, and information sciences are required to understand, forecast, and navigate landscapes in dynamic change.

I. Vision

Our department is strongly grounded and deeply balanced in each of the **core subfields of Geography** (Physical, Human, Environment and Society, GIScience) and our current research portfolio reflects these core subfields to **engage** in cutting-edge research and learning activities. Because many of our research topics require contributions from the natural, social, and information sciences, as a department we thrive among the intersections within Geography's existing strengths, **bridging** spatio-temporal scales and subfields. These subfield **intersections** are often arenas for **innovation** and discovery, advances in theory, new methodologies, and policy interventions. We are committed to **imagining** solutions that support human and environmental justice, and **creating** novel approaches to deliver our research, teaching, and service activities. To do so, we are constantly exploring and expanding the frontiers of our scholarship and citizenship.

Our Vision – The Department of Geography will be:

Engaging in today's *complex global challenges* with partnerships in research, training, and service.

Bridging *scales, subfields, and disciplines* with cross-subfield and interdisciplinary approaches to problem-solving and e-education.

Innovating *how we learn* using space-time modeling, geoinformatics, and participatory approaches.

Imagining *healthy landscapes and environmental functions* for people, societies, and ecosystems.

Creating novel solutions for *livelihood resilience and equitable governance* in rapidly changing times.

II. Research Excellence, Visibility, and Intersections

The Department of Geography's goals that increase research excellence include investing in the core subfields and building at interdisciplinary intersections. We plan faculty hiring in social justice and human security, environmental governance and urban systems, environmental and human-environment systems, global change and climate interactions, earth systems ecology, health geoinformatics, and remote sensing. This departmental planning is consistent with College of EMS initiatives set out in the "2015-2019 Strategic Plan: A Blueprint for Sustained Excellence in the Earth, Energy, and Material Sciences and Engineering."

Objective 1

Be the most recognized department and graduate program in our **core specialties** and a world leader in understanding and explaining space and place phenomena from geographic perspectives.

Actions

Continue to invest in the four core subfields of geography, and revisit hiring priorities and curricular alignments to ensure all sub-fields are both individually strong, at the level of being national and international leaders, and interdependent.

Objective 2

Reaffirm and strengthen geographic **subfield and interdisciplinary intersections** to demonstrate cutting edge interdisciplinary research and teaching with emphasis on these themes:

- **Livelihoods and landscapes**
- **Space-time representations and modeling**
- **Global change and climate interactions**
- **Social justice and human security**
- **Boundaries and networks**

Actions

2.1 – Increase visibility of intersections within the discipline, the University, and external institutions:

- Complete interactive graphic and links for these intersections on our **webpage** (i.e., interactive graphic is programmed, first phase of web links are available).
- Define our **audiences** more strategically (e.g., prospective graduate students, sponsors, donors, faculty recruitment, and research collaborators).

- Regularly **update** intersection wording to reflect new faculty hires and changing graduate students interests.
- Blend existing and new **events** and activities to highlight interdisciplinarity (e.g., symposia, co-sponsoring of events, combining no)Boundaries Conference with the Miller Lecture, media training events).
- Provide more support for **science communication** & outreach through the Department staff, EESI, and at the college level.

2.2 – Build at the **Social Justice and Human Security** intersection:

- Submit one or more proposals for co-funded, tenure-track faculty positions to the Rock Ethics Institute’s new initiative in **interdisciplinary ethics research and ethical literacy, 2014-2016** (e.g., climate science, food science, cyber-science, infectious disease).
- Become a **leader and collaborator in sustainability** working with Sustainability Institute and faculty and student outreach in social justice (e.g., sponsoring students to engage in policy involvement in DC, possible IGERT in conflict resolution).

2.3 – Lead in **Environmental Governance and Urban Systems**:

We will fill existing gaps in research and teaching needs by hiring in the area of Environmental Governance with a particular focus on urban areas.

Environmental governance is a foundational area within the discipline of geography and attends to the rules, practices and institutions involved in natural resource management and policy. This includes attention to **property rights**, as well as **national and international policies** in determining access and use of a diverse set of land and water resources. A hire in this area also will build new, innovative integration among multiple sub-fields in the department (human, physical, environment and society, GIScience), while advancing the departmental intersections identified in this Strategic Plan.

This hire will contribute to the Department becoming a **leader and collaborator in sustainability**, and enhance coordination with campus units, such as the Sustainability Institute and the Social Science Research Institute, and faculty and student outreach (e.g., sponsoring students to engage in policy involvement in DC, possible IGERT in conflict resolution).

2.4 – Strengthen **Environmental and Human-Environment Systems**:

In the following group of three proposed faculty hires (2.4a, 2.4b, 2.4c), the Department seeks to build upon its strengths as a **leader and collaborator in sustainability** working with Sustainability Institute and faculty and student outreach (e.g. new **Global Water Center** being advanced in the Strategic Plan of the College of Earth and Mineral Sciences; possible IGERTs in energy-water issues and land use-biodiversity). The

Department's strategic initiatives in this area are also designed to contribute to College-wide initiatives on the **Anthropocene** reflected in the EMS Strategic Plan and its Institutes (Earth and Environmental Systems Institute/EESI; Energy Institute).

2.4a – Environmental and/or Human-Environment Systems:

Strengthen our expertise on **water issues, including resource management, access, and security**, and major new initiatives by leveraging campus-wide interest and planning in water research and education.

We will develop one or more proposals for co-funded, tenure-track faculty positions in **water-related themes** (e.g., water policy, ecohydrology, water-energy nexus, water resource management, etc.).

We will also become a leader and collaborator of water themes, developing and teaching undergraduate, graduate, and professional resident education and e-education **courses, certificates, and degree programs**. For example, we will move forward with existing proposals for a Water Resources Modeling Certificate (EMS), Intercollege Professional Masters in Water Resources, GEOG 431 – Geography of Water Resources, along with existing Watersheds and Water Resources Minor (Geography, EMS).

2.4b – Global Change and Climate Interactions:

Seek leveraged funds for a tenure-track faculty position in **systems modeling** (broadly defined to address human-environment coupled systems).

To fully understand and predict **ecological and cultural changes**, it is essential that whole systems models be developed that properly represent human forcing of ecological systems across relevant spatial and temporal scales and their likely interaction with other key forcing processes such as climate change. This requires social and environmental scientists who understand and can model the **complex interactions of human consumption with ecosystem energy and material fluxes**. These interactions differ fundamentally across spatial and temporal **hierarchies of scale**, resulting in highly non-linear relationships.

2.4c – Earth Systems Ecology:

Seek leveraged funds for a tenure-track faculty position in **Earth Systems Ecology**.

To maintain strengths in earth systems ecology there is a timely need and opportunity to recruit a faculty member in areas of study that would include one or more of the following: interactions among landscapes, terrestrial ecosystems, climate change, land use/land cover change, biofuel production or other energy-related processes, and biogeochemical cycling. Research focused on landscape, regional and/or global scales would be desirable and fit well into existing strengths in this area.

Especially helpful to research and teaching in the Department would be to identify a faculty hire with strengths in areas such as **Earth system modeling**,

spatially explicit vegetation modeling, remote sensing, networked observations, model-data synthesis, or coupled natural and human systems. This specialization would be closely integrated with and ties to strategic initiatives in the Ecology Curriculum and other related departments.

2.5 – Combine Geography’s **four subfields with all five intersections:**

Seek collaboration and leveraged funds for a tenure-track **faculty position in Health Geoinformatics** with expertise in spatial analysis, computational ecology, Big Data, and large data assimilation (this focus could be related, for example, to geographically referenced genetic information for humans and/or other biological systems).

Large scale environmental changes caused by human activity such as habitat destruction, pollution, and biological invasions have the potential to alter the risk of bacterial, parasitic, and viral diseases to emerge in human or animal populations. Variation in weather and climate is also recognized as being a key driver of the **dynamics of many infectious diseases.**

Strengthening linkages between EMS, particularly in climate science and GIScience, and ecologists and biologists in the Intercollege Graduate Program in Ecology, Penn State’s Centers for Infectious Disease Dynamics (CIID) and Human Diversity, epidemiologists at Penn State Hershey, and Health Informatics and Computational Biology faculty in IST would deepen Penn State’s efforts to lead research on identifying mechanisms that control the emergence and re-emergence of disease.

This faculty hire would build on current expertise in climate science, infectious disease ecology, and GIScience to assist in the development of tools to **forecast health effects** in the context of on-going global change, and address the **ethics** of how such data should be used.

2.6 – Strengthen Geography’s capabilities in **remote sensing**, broadly defined:

Remote sensing has been identified by the faculty as an area of excellence that we want to strengthen. There should be integration across our research and education missions so that we have in-house capabilities to be a leader in developing and using remote-sensing technologies and applications.

The Department is excited about the strategic, synergistic potential of a focus on **environmental sensors**, ranging from materials and design issues to Big Data research, that have emerged as a priority within the College of Earth and Mineral Sciences. Our students, both online and resident education, should have opportunities to master these skills.

2.7 – Encourage and promote intersections:

Develop a clear plan incorporating the following elements for implementing existing and new concrete ideas to encourage and promote intersections, with examples listed below:

- Conduct periodic ‘**innovation retreats**’ with intra-Geography and intra-University faculty;

- Market the department's priority initiatives to seek **co-funding** by the college, and the university, as well as outside of Penn State;
- Seek innovation options and **seed grants** available through Penn State (i.e., best coordinated by faculty through PSIEE, Sustainability Institute, EESI, etc.).
- Seek **extramural support** for research in the intersections (e.g., dynamic relationships between social and spatial networks, ontology of networks, conflict resolution and human security, geography of justice);
- **Co-teach** undergraduate and graduate courses (e.g., representations of landscape and social justice), including collaborative teaching of courses for our students that would involve colleagues in other departments and internationally, with the latter strategically suited to match the global reach emphasis of the Strategic Plan of the College of Earth and Mineral Sciences;
- Organize and promote strategic Coffee Hour **colloquia and theme-oriented symposia** (e.g., social marginalization and landscape change);
- Organize and deliver educational **curriculum symposia** (e.g., human-environment interactions in a rapidly evolving climate system).

Objective 3

Implement a **digital library of products** available through multiple media.

Actions

Build on GeoVISTA's existing service and **increase visibility** through multiple media (e.g. pre-publication tweets, YouTube video clips of research projects, graduate student CVs).

Objective 4

Strengthen the focus and staffing of existing research clusters in Geography.

Actions

Examine the existing **focus and staffing of centers, labs, and faculty-student research groups** and individuals, for ways to better align them with intersections, and attract participation from other Departments and units—Centers, Institutes, labs, and faculty-student research groups and individuals—to forge collaborations to explore novel research and education opportunities.

Centers, labs, and faculty-student research groups and individuals within Geography serve as important nodes of excellence and focused activities. Continued co-evolution among these clusters of expertise and activities is a strategic priority for the Department. Faculty hires should be considered explicitly with regard to these **nodes of existing excellence**.

III. Curricular Excellence, Leadership, and Engaged Scholarship

The Department of Geography is an established leader in curricular excellence, leadership, student success and engaged scholarship and is uniquely poised to strengthen these areas through focused initiatives. The focus of our vision in this Strategic Plan is that curricular excellence and student success will be achieved through Engaged Scholarship activities that enrich the Department's curricula, build on our strengths as a broadly defined community, and leverage our expertise and creativity in the core sub-fields of our discipline and in the intersection spaces.

Objective 5 & Actions

Recast Geography **General Education** courses to encourage growth of the undergraduate degree programs and increase the rigor and richness of introductory courses for majors.

Objective 6 & Actions

Design and develop a new **World Campus undergraduate major in GIScience**.

Objective 7 & Actions

Empanel an **external advisory board** of Geography alumni and thought leaders to help guide Department perspectives that include curricular decision-making and Engaged Scholarship opportunities.

Objective 8 & Actions

Restructure **graduate curriculum** to offer students greater opportunities in methods, intersections, and core subfields of Geography, along with formal instruction in professional development.

Objective 9 & Actions

Increase use of **active-learning pedagogies** by creating a new active-learning classroom equipped with high-end technology to enable problem-solving and team learning using real-time data and information, as recommended in the EMS Strategic Plan.

Objective 10

Enable **Engaged Scholarship** in our curriculum:

Actions

9.1 – At the **undergraduate level**, engaged scholarship should be fostered early and often in a student’s career and should allow students to progress through abstract and applied thinking to problem solution and problem finding (see Engaged Scholarship plan with Faculty Senate). We will:

- Develop thematic intersections with proposed **general education** themes and our general education courses;
- Use **blended learning** opportunities to engage learners from the commonwealth campuses;
- Build **problem-solving, problem-finding, and skill-building** curricular content in upper-level courses; and
- Continue to incorporate internationalization and **global learning opportunities** as integral to experiences and learning in the Department. The Geography Department should play an increasingly major leading at Penn State role in these areas that links strategically to EMS College and Penn State-wide emphasis and initiatives.

9.2 – At the **graduate level**, engaged scholarship and interdisciplinary activities are the most effective ways to engage faculty in cross-disciplinary collaborations:

- Develop **professional courses** and/or opportunities for our graduate students and enforce the requirement for students to take at least one **graduate seminar outside the student’s sub-field**, and
- Offer and advertise **interdisciplinary graduate seminars** that will attract broad campus interest in both research and teaching.

IV. Strengthening, Sustaining, and Fostering our Community and Student Success

The Department of Geography at Penn State values its intersectional approach to academics, which spans the sciences, social sciences, humanities, and education. Over the next five years we seek to deepen intersectional collaborations within the department and beyond. Our successes in this area include **strong intellectual ties** with Institutes and other academic units, a highly recognized Coffee Hour colloquium series with internal and external speakers, and mentoring programs such as SWIG and SYWIG.

An important corollary to this integrative scholarly approach is a deep commitment to fostering reflective practices that counteract exclusionary processes that marginalize particular voices not only in our discipline but most importantly within our own department. It is also critical that **building diversity and community** according to these principles strengthens our intellectual project and deepens our impact on society. In the next five years we plan to continue to foster these areas of diversity and community building.

Objective 11 & Actions

Increase student diversity:

Maintain, enhance and retain a diverse and inclusive community. Working in tandem with the College of EMS Office of Educational Equity we will continue to participate in programs that encourage the **recruitment** of a more diverse student body (e.g. Bunton-Waller Fellowships, SROP Summer Research Opportunities and the McNair Program). In seeking to **attract global students** to a global major, we will continue recent efforts to re-think introductory courses in ways that will attract students coming from South and East Asia, the Middle East, Latin America and Africa.

The **international and globalization of initiatives and courses** at other levels also will be internationalized and strengthened as part of globalization initiatives and programs in the department and at Penn State. This strengthening and diversification will be able to build upon the success of the Department's Africa field course.

Finally, we hope to create an **undergraduate student center** with computers, printers, etc. that will foster a deeper sense of community and belonging among all our undergraduate students.

Objective 12 & Actions

Integrate across ranks:

Continue to foster a culture of cross-fertilization promoting creative collaborations and mentoring across all levels and ranks. The Department of Geography benefits greatly from an extensive group of **fixed-term faculty, long-term staff, post-doctoral scholars, and instructors**. We will seek ways to further **integrate** these valued members of the community with tenured and tenure-track standing faculty and students.

One action, which is already underway is restructuring **office space** so that tenure line, fixed-term faculty, and staff are more integrated. Similarly, the department should review its **bylaws** regarding the roles and responsibilities of fixed-term and standing faculty with an eye towards creating a department that benefits more fully from the expertise that all faculty and instructors bring to the table, and also one that fosters a sense of appreciation and belonging for all.

Objective 13 & Actions

Collaborate with other units:

Participate in and expand formal collaborations across Departments and Colleges. The department already has strong ties with several campus **Institutes** and offers **joint degrees** with Women's Studies, Operations Research, and Human Dimensions of Natural Resources and the Environment. Over the next five years we will build additional links across the University through connections to other programs such as the **Population Research Institute**, **Rock Ethics**, and the **CyberScience Institute**.

Objective 14 & Actions

Reach out to the Community:

Explore the possibility of creating a **Community Geographer** position as part of the engaged scholarship mission of The Gould Center, not to replace any current positions but to allow the university to provide pro bono spatial analysis aimed at understanding and addressing significant social, economic, environmental and cultural problems facing State College, Central PA, and beyond. A position of this nature would enhance geography's profile by building bridges between the department's subfields and supports the University's mission to **increase Public Scholarship**.

Objective 15

Strengthen our partnerships:

Actions

- Organize an **alumni mentor** program that directly links undergraduate students to alumni.
- Create a departmental **advisory board** comprised of alumni (current GEMS members) and targeted professional and community leaders to help us identify opportunities (this role could be partially implemented by the Community Geographer).
- Conduct **networking** events (e.g., modeled after PSIEE's speed-meetings) that link the departmental community with local and global partners and leaders.
- Organize university-level **symposia and workshops** involving leading professional geographers.

Objective 16

Document, promote, and award our successes:

Actions

- **Document** our successes with better tracking **student involvement in engaged activities** through an annual, longitudinal engagement survey that will document the progression of engagement activities and subsequent educational and career choices of our undergraduate students.
- Continue developing new ways to **market and promote** these successes via the department **Web** site that highlights our core and intersection research and teaching foci, as well as through **social media** and **news releases**.
- **Award** our successes by adding an **engaged scholarship certificate** to our annual recognition program to recognize faculty, staff, and students for their efforts in connecting the department with the community through research, teaching, and/or service.
- Create faculty, undergraduate, and graduate student **seed grants** to strengthen internal or external opportunities in engaged scholarship and community interaction, including those that ‘jump start’ collaborations among faculty with common interests.

Credits

Oversight of design, organization, execution, and coordination with EMS College planning:

Karl Zimmerer (Department Head, August 2013-June 2014)

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III. Curricular Excellence, Leadership, and Engaged Scholarship:

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