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

Strategic Plan
2020-2025

Vision Statement

The Department of Geography at Penn State is committed to generating and communicating resilient and just solutions for the future of our planet and its people.

Mission Statement

The Department of Geography at Penn State is committed to building a resilient and just world by bridging the subfields of geography to identify innovative and creative social, environmental, and spatial solutions. We seek these solutions through our teaching, research, and service by advancing the vision of how to sustain landscapes and livelihoods, respond to the climate crisis, and make data science spatial. We see these as grand challenges for Penn State Geography.

OVERVIEW

The department's strategic plan is divided into sections on Teaching, Research, and Community with objectives woven throughout that relate to a) grand challenges, b) diversity and inclusion, c) integration between resident and online programs, and d) funds development. Each section has a basic structure setting out Goals, Objectives, and Action Items. This hierarchy meets a suitable portion of the university's template requirements for 'unit' plans—at the college level. Objectives are also related to university priorities for strategic planning. The document finishes with appendices listing university strategic planning codes used throughout (the fine print, such as "F2 Engaging Our Students" and "TE Transforming Education" listed in Appendix A), process notes on idea generation and discussions for the plan (Appendix B), and a list of staff and faculty in the department when the report was completed (Appendix C).

TEACHING GEOGRAPHY

UNDERGRADUATE TEACHING

Our undergraduate resident teaching program has undergone five years of extensive revision with major requirements refined, new certificates created, course levels adjusted, old courses re-named and new ones developed to create strong undergraduate geography programs. The resulting changes required over 60 proposal submissions to Faculty Senate and the result in part is a healthy increase in undergraduates majoring in geography, from approximately 60 to 110 during that time. These new and revised programs allow students to be flexible in tailoring their education to meet their specific and changing needs.

The following teaching and learning goals will improve undergraduate experiences and outcomes in the Department of Geography. For example, we will be working through new rounds of course proposal submissions to remedy missing depth and breadth among current offerings based on planned curriculum mapping. Each Goal has Objectives that are elaborated with Action Items in this Teaching section. Additional objectives on increasing course content that celebrates diversity and works against racism are listed in later sections.

- Goal 1: Improve undergraduate geography curricula
    - Objective 1.1: Conduct curriculum mapping
    - Objective 1.2: Update geography-based undergraduate minors and certificates
    - Objective 1.3: Build grand challenge themes and anti-racism into courses across the curricula
- Goal 2: Increase the reach of geographic knowledge
    - Objective 2.1: Increase the number and diversity of undergraduate geography students
    - Objective 2.2: Develop new online undergraduate programs to promulgate geography
- Goal 3: Increase resources for undergraduates
    - Objective 3.1: Foster donor development to enhance undergraduate experiences in geography

Goal 1: Improve undergraduate geography curricula

Objective 1.1: Conduct curriculum mapping

Refine the curriculum by building on program objectives, improving learning objectives of individual geography courses, and establishing cohesion through course sequences. This curriculum work will provide a systematic understanding of how all courses fit into the overall geography curriculum; this is particularly important given seven new faculty hires into geography from a broad range of academic programs.

Action Item 1.1.1: **Curriculum mapping** for geography undergraduate courses, building from core 200-level courses from the four subfields (physical, human, environment & society, and geographic information science), to 300- and 400-level sequences.

Action Item 1.1.2: Evaluate **learning objectives** for courses so they produce high-level learning outcomes by building problem-finding, problem-solving, and skill-building content.

Action Item 1.1.3: Complete plans for the **300-level** courses for each of the four fields that build from the core set and lead to 400-level advanced content and capstone experiences that bridge sub-fields. For example, create the 300-level **field/applied methods** course in Maymester for the students specializing in physical geography.

Action Item 1.1.4: Complete **course proposals** for missing depth and breadth among four-field offerings based on the curriculum mapping.

Action Item 1.1.5: Continuously evaluate and **compare content** among courses to strengthen learning sequences, incorporate new cutting-edge topics, and avoid excessive content redundancy.

F2 Engaging Our Students
TE Transforming Education
These are university strategic planning codes, listed in Appendix A.

Objective 1.2: Update geography-based undergraduate minors and certificates

Revise and/or decommission minors administered in geography in response to the popular and more flexible new set of certificates the department has added. For example, the sequenced pair of certificates in GIScience are more current than the single GIScience minor and could perhaps replace it, depending on how the two types of credentials are perceived by employers. The sets of resident undergraduate minors and certificates administered by geography are listed below:

Certificates

- L-Scapes: Landscapes, Societies, Cultures, and Political Economies
- Justice, Ethics, Diversity in Space
- Environment and Society Geography
- Global Environmental Systems
- Landscape Ecology
- Climate and Environmental Change
- Geographic Information Science
- Geospatial Big Data Analytics

Minors

- Geography
- Environmental Inquiry
- Climatology
- Watersheds and Water Resources
- Information Sciences and Technology for Earth and Mineral Sciences
- Geographic Information Science

Action Item 1.2.1: Submit Senate proposals to **update all minors**. Drop those less suited to geography.

Action Item 1.2.2: Evaluate and update **course lists** associated with each certificate based on demand and opportunities to include new courses in geography and other departments.

Action Item 1.2.3: Evaluate relationships among certificates, working to reduce overlap and plan more **pairings of introductory and advanced certificates** that build one to the next, taking advantage of prerequisite relationships.

F2 Engaging Our Students
TE Transforming Education

Objective 1.3: Build grand challenge themes and anti-racism into courses across the curricula

Build content into most GEOG courses that is related to the department vision, mission, and related grand challenges of the department (see Goal 7).

Action Item 1.3.1: Showcase our existing courses and create new courses on **diversity** topics with new faculty hired who have expertise in this area. Build **anti-racism** experiences into as many courses as possible, such as highlighting Black and Indigenous scholars' contributions to topics covered in a course. This shift acknowledges and disrupts the whiteness of knowledge production and incorporates other ways of knowing with equal importance into undergraduate experiences.

Action Item 1.3.2: Create new courses on the **climate crisis** and build environmental topics, such as climate change concerns and solutions, into the concepts covered by many of our courses.

Action Item 1.3.3: Create student engagement experiences in the surrounding region in collaboration with the **Community Geographer** and on issues that directly affect regional stakeholders. For example, Penn State's Pittsburgh Center is one locus for offering programs providing a connection to urban experiences in the region for students.

Action Item 1.3.4: Develop a more substantial geography **internship program** that places undergraduate students in work experiences matched to their passions and using their expertise. For example, fostering opportunities with alumni from the resident and online geospatial programs could offer links to internships and mentoring for undergraduates. More robust internship opportunities will complement the professional development one-credit course we currently offer.

F2 Engaging Our Students
F3 Advancing Inclusion, Equity, and Diversity
F5 Driving Economic Development
TE4 Prepare our students for success in their careers and in life.

Goal 2: Increase the reach of geographic knowledge

Objective 2.1: Increase the number and diversity of undergraduate geography students

The department's revision of our general education offerings and the development of many of the first inter-domain offerings at Penn State have increased the number of majors. Excellent general education courses and improved communication about the exciting and relevant areas of study in geography have

increased the visibility of our majors to students. Likewise, new course titles and strategically written text in the course bulletin make geography course options come to the top of lists produced by student searches related to their current interests.

Action Item 2.1.1: Evaluate whether certificate interest and completion translate to enticing **more undergraduates to major** in geography, or whether it reduces the likelihood students major when they can carve out a select portion of the field to complement another major.

Action Item 2.1.2: Elevate geography in **K-12 education** and potentially in underrepresented minority (**URM**) communities with open educational resources (OER). We aim to increase populations that are drawn to geography as they mature and then increase the pipeline of geographers, including URM scholars, in the long run.

Action Item 2.1.3: Evaluate the new set of GEOG zero- and 100-level **general education** courses to examine their effectiveness in inviting students new to geography to become majors. These courses also raise awareness of geography as a field and invite students to apply spatial thinking in their other fields of inquiry.

Action Item 2.1.4: Evaluate the effectiveness of the **200-level courses** that present near-complete ranges of **core concepts** in the four sub-fields of geography. The intent of these courses is to ensure breadth of knowledge of geography for majors and establish a foundation from which 300- and 400-level courses build in-depth learning. They are also intended to build an inclusive community among geography undergraduates that is supportive of scholarship.

F2 Engaging Our Students

Objective 2.2: Develop new online undergraduate programs to promulgate geography

Create new undergraduate geography programs that expand the visibility of geography and increase access to geographic ways of thinking. Create more online courses and program offerings to serve undergraduates at the Penn State Commonwealth Campuses and through the World Campus. Geography's majors are completed at University Park, with most undergraduate advanced courses offered only through resident instruction. Expanding the reach of our online teaching expertise to additional undergraduate offerings will allow undergraduate programs outside geography to include geographic options in their online degrees. Online teaching also meets faculty and graduate student teaching needs when they are traveling for extended field research (for example, on a Fulbright) and offers graduate summer teaching options that produce both summer stipends and departmental income.

Action Item 2.2.1: Create **more online** undergraduate geography courses. GEOG 6N "Maps and the Geospatial Revolution" and 2N "Apocalyptic Geographies" are potential next courses to go fully online. Remote teaching by almost all our faculty members in 2020 will also provide insight into which courses are suited to online learning (though remote offerings are not prepared in the same ways as fully online asynchronous web courses).

Action Item 2.2.2: Choose geography **certificate(s) to offer online**. These choices also generate reasons for which courses are next developed as online (above).

Action Item 2.2.3: Evaluate options for making the geography Bachelor of Science degree a **STEM degree**, based on federal government definitions. This aim requires convincing the university to change the Classification of Instructional Program (CIP) code[1] of the degree, creating a new degree, or renaming our BS degree. This CIP change is an aspect of many geography department name changes across the country ('Geography' is not currently a STEM field within the Department of Education's CIP taxonomy). This STEM classification is important to international students who have the option of more years of OPT (optional practical training; working in the United States after graduation) *if* they are classed as graduating with a STEM degree rather than one year OPT for non-STEM graduates. (CIP STEM designation is also an issue for geography MS and PhD graduate degrees.)

Action Item 2.2.4: Design and develop a new **World Campus undergraduate major in GIScience**. The department has the most online content already developed in this subfield, compared to our other subfields, and thus could move rapidly toward this objective. GIScience already has a STEM designation in the CIP classing.

F1 *Enabling Access to Education*

TE2 *Foster a curriculum that integrates multiple modes of delivery, while leveraging online capabilities and enhanced and emerging digital learning options.*

DI4 *Make online education and personalized learning central to our 21st-century land-grant mission.*

Goal 3: Increase resources for undergraduates

Objective 3.1: Foster donor development to enhance undergraduate experiences in geography

Attract donations to support geography teaching goals in collaboration with the EMS development office. Alumni are often eager to make an impact with their donations to Penn State. They want to help increase diversity and benefit undergraduates in their once-home department. Most of the examples below link to Objectives within Goals 1 and 2 above.

Action Item 3.1.1: Secure funds that provide undergraduates with an **internship stipend** to support living expenses for students who work in un-paid or low-paid positions that provide key work experiences in the field. This resource is particularly important for underrepresented minority (URM) students.

Action Item 3.1.2: Garner donations to provide **hardship funding** for students in need. This resource is particularly important URM students.

Action Item 3.1.3: Generate funds for a **Maymester field/applied course** on physical/environmental geography for majors, minors, and certificate students. These funds may support instrumentation, travel, meals, lodging or camping for students. Funding field camp helps URM students have their first wilderness experiences.

Action Item 3.1.4: Generate funds to support travel and/or living expenses during **fieldwork research** by an undergraduate. The work may be for their own research, or they

[1] https://nces.ed.gov/ipeds/cipcode/default.aspx?y=56
https://www.ice.gov/sites/default/files/documents/Document/2016/stem-list.pdf

may be working for a graduate student or faculty member in the field. These funds support research experiences for students.

Action Item 3.1.5: Generate funds to support **global experiences** for undergraduates. International travel during research and service learning makes global citizens of our undergraduates.

Action Item 3.1.6: Promote geography by involving alumni and sponsoring group activities such as a summer program (or a Governor's School, or NSF REU) for high school students interested in studying geography, or by offering in-person programs for **K-12 outreach** about the importance of geography.

F1 Enabling Access to Education
F2 Engaging Our Students
TE4 Prepare our students for success in their careers and in life.

GRADUATE TEACHING

Graduate students enroll in geography research degrees in the resident MS and PhD programs, the five-year resident program that combines a one-paper master's option with the PhD, and the online Master of Science in Spatial Data Science (MS SDS; starting January 2021). The department's other Online Geospatial Education (OGE) programs are oriented to professionals. These are the Master of GIS (MGIS) degree with options and four graduate certificates: GIS; Geospatial Programming and Web Map Development; Remote Sensing and Earth Observation; and two Geospatial Intelligence certificates. We also host the Geospatial Intelligence option within the university's Master of Professional Studies in Homeland Security (iMPS-HLS). Online certificates and degrees are delivered through the Dutton e-Education Institute and World Campus. Altogether the department is home to 13 graduate-level programs in which approximately 900 students are enrolled.

Topics in this sub-section on graduate studies are:

- Goal 4: Update graduate geography programs
  - Objective 4.1: Evaluate and improve the resident graduate curriculum
  - Objective 4.2: Build the online graduate curriculum
- Goal 5: Integrate graduate programs in geography
  - Objective 5.1: Connect online and resident students
  - Objective 6.1: Improve graduate recruiting and admissions
- Goal 6: Expand resources for graduate studies
  - Objective 6.1: Increase the number of funded graduate students
  - Objective 6.2: Conduct development to fund graduate student experiences in geography

Goal 4: Update graduate geography programs

Objective 4.1: Evaluate and improve the resident graduate curriculum

Evaluate the MS and PhD graduate curricula with recognition that the department's emphasis in these programs is to achieve immediate immersion of students in research, both in theory and methods.

Action Item 4.1.1: Continue to work on generating cross-university interest in resident graduate courses and **seminars taught by geographers**, through early advertising of offerings, building linkages with other departments, consider co-taught seminars, and joining or initiating dual-degree graduate programs (such as with Asian Studies, as we have with Climate Science, Human Dimensions of Natural Resources, Water).

Action Item 4.1.2: Develop and **advertise** interdisciplinary graduate seminars that will attract broad campus interest in both research and teaching.

Action Item 4.1.3: Conduct **curriculum mapping** to understand and plan scaffolding among geography graduate courses.

Action Item 4.1.4: Submit curriculum change **proposals to Faculty Senate** for the resident MS and PhD degrees (the current Bulletin content is years out-of-date, requiring 500-level courses that no longer exist). This step also includes removing the two-paper master's option at the university level and specifying the option of one publishable paper within the five-year degree.

Action Item 4.1.5: Encourage graduate doctoral committees that span a range of subfields and disrupt the tendency for **silos** within the department.

Action Item 4.1.6: Improve advisers' understanding of the processes for **grads making continuous and timely progress** toward degree milestones. This objective includes students involving all committee members in their research progress each semester, versus having all but the adviser contribute to the culminating project before the completed document is delivered.

Action Item 4.1.7 Develop our department's capacity to help graduate students understand the academic job market and also nonacademic **career pathways**. Provide resident graduate student advisers with resources to help students navigate both types of careers. Invite guest speakers from Penn State's Office of Career Services to talk about how to translate a PhD and academic CV for jobs in nonacademic industries and organizations.

F2 Engaging Our Students
TE3 Support and empower our outstanding faculty and staff.
TE4 Prepare our students for success in their careers and in life.

Objective 4.2: Build the online graduate curriculum

The professionally oriented degrees in online geospatial education (OGE) have both applied and research emphases.

Action Item 4.2.1: Conduct **curriculum mapping** for geography's online graduate courses.

Action Item 4.2.2: Build **additional courses for the new MS SDS** that update OGE emphases with more spatial data science content.

Action Item 4.2.3: Build additional **geospatial intelligence courses** that emphasize civilian needs such as disaster mitigation, supply-chain function, and business GIS.

Action Item 4.2.4: Plan and implement a regular cycle of graduate **course updates in OGE**.

Action Item 4.2.5: Improve student and faculty support systems to ensure efficient operations and to maintain **high quality advising** for graduate students in our online programs.

F2 Engaging Our Students
TE2 Foster a curriculum that integrates multiple modes of delivery, while leveraging online capabilities and enhanced and emerging digital learning options.
TE3 Support and empower our outstanding faculty and staff.
DI4 Make online education and personalized learning central to our 21st-century land-grant mission.

Goal 5: Integrate graduate programs in geography

Objective 5.1: Connect online and resident students

Create a learning environment where all graduate students (resident and online) feel connected as a community and to the discipline of geography.

Action Item 5.1.1: Facilitate seminar and professional development opportunities in which **both resident and online students** can participate.

Action Item 5.1.2: Support a **variety of culminating experiences** (e.g., face-to-face or virtual conferences, workshops, or publications) for resident and online students and advisers to participate in together.

Action Item 5.1.3: Involve **OGE graduate students in mentoring UROC undergraduate** research experiences, which benefit their capstone or thesis research progress and connect undergrads to mentors who are practicing professionals. The undergraduate would gain experience conducting a portion of the working professional's research.

Action Item 5.1.4: Determine the budget models and mechanisms for geography **resident grads to enroll in the online geospatial** courses we offer (on over 30 topics).

F2 Engaging Our Students
TE2 Foster a curriculum that integrates multiple modes of delivery, while leveraging online capabilities and enhanced and emerging digital learning options.
TE4 Prepare our students for success in their careers and in life.
DI4 Make online education and personalized learning central to our 21st-century land-grant mission.

Objective 5.2: Improve graduate recruiting and admissions

Geography is a discovery major and attracting the very best students to become geographers requires reaching out in varied ways about the shared interests others have with geographers.

Action Item 5.2.1: Update the resident graduate admissions requirements, **removing the GRE** as biased against URM from resident admissions, as it has been removed from most online geospatial programs and many geography graduate programs in the United States.

Action Item 5.2.2: Identify and enact actions that improve the department's ability to **attract URM** graduate applicants (and have them accept admission offers) in both resident and online programs, such as top-ups to stipends.

Action Item 5.2.3: Enhance people's ability to discover Penn State geography graduate degrees with improved descriptions of emphases and continued **refinement of research clusters** (or a similar concept of aggregates of emphases that bridge the four fields).

Action Item 5.2.4: Create a welcome session for promising resident-program **applicants to visit State College**, tour the department, and meet grads and faculty.

Action Item 5.2.5 Continue to examine ways to change geography MS and PhD degrees to **STEM degrees** to attract international students (see 2.2.3 in undergraduate section about CIP codes), with the caveat that resulting changes should not fragment the department.

F2 Engaging Our Students
F3 Advancing Inclusion, Equity, and Diversity

Goal 6: Expand resources for graduate studies

Objective 6.1: Increase the number of funded graduate students

Action Item 6.1.1: **Grow the graduate program** to fit the size of the faculty, perhaps by emphasizing seeking research funding that incorporates more graduate RAs (perhaps instead of budgeting portions of postdoctoral scholar, summer salary, or course buyouts).

Action Item 6.1.2: Seek additional National Science Foundation **Research Traineeship** programs through proposal writing.

Action Item 6.1.3: Mentor students to **seek external fellowships** and substantial research funding (such as NSF GRFP). Nominate students for fellowship programs as well.

F1 Enabling Access to Education
TE3 Support and empower our outstanding faculty and staff.

Objective 6.2: Conduct development to fund graduate student experiences in geography

Attract donations to support geography graduate student efforts in collaboration with the EMS development office.

Action Item 6.2.1: Endow the **Outstanding Teaching Assistant Award** (as the RA award is endowed by the Easterlings).

Action Item 6.2.2: Seek funding for year-long fellowships to support dissertation writing and seek **fellowships and/or research assistantships** that emphasize support for greater diversity (LandscapeU NRT fellowships are an example).

Action Item 6.2.3: Fund **recruitment top-ups** to attract the best applicants (EESI top-ups are an example).

Action Item 6.2.4: Fund PhD student **stipend top-ups** that bring a continuing grad's own grant-funded stipend up to the grade-12 half-time GA level required for the Graduate

School to allow tuition to be paid (this is a huge hassle). These funds are not used to augment faculty grants.

Action Item 6.2.5: Fund PhD student **match awards which pay 601-level tuition** and benefits while a grad is conducting funded fieldwork or research paid on grants that disallow tuition payment (this is common for students' own grants—NSF DDRI being an example). 'Tuition follows stipend' so it is not possible to pay tuition with Graduate School funds if the stipend is not paid through the department at a grade-12 half-time GA amount.

Action Item 6.2.6: Fund awards that support graduate students' data collection or purchase and other **research needs** for their culminating project (capstone, paper, thesis, or dissertation).

Action Item 6.2.7: Fund **travel expenses for OGE** master's students to present their capstone projects and theses at academic or professional conferences and participate in the entire conference.

F1 Enabling Access to Education
F2 Engaging Our Students

GEOGRAPHY RESEARCH

The department of geography is a four-field program covering the breadth of the discipline. We use the four fields of human geography, physical geography, environment & society, and geographic information science to describe our breadth to other geographers, structure our curriculum, and plan a balance of hiring. They are not, however, terms that are best used to highlight the range of topics we research, especially for communicating our emphases outside the department to university administrators, to parents and potential undergraduate majors, to potential graduate applicants, and to the public. In these outward-facing communications and our public-facing mobile-first website, we have been emphasizing six research clusters that describe our work overall and encapsulate the shared interests within flexible groupings of our faculty:

- Environmental Change and Prediction
- Justice, Ethics, and Diversity
- Population, Environment, and Governance
- Food Security and Human Health
- Geospatial Big Data Analytics
- Spatial Modeling and Remote Sensing

This section is organized under the following headings:

- Goal 7: Elevate visibility and connectedness of geography research
    - Objective 7.1: Develop and embrace grand challenges that unify the department
    - Objective 7.2: Highlight the research geographers are doing
    - Objective 7.3: Create professional development programs for faculty
    - Objective 7.4: Devote departmental resources to support geography research
- Goal 8: Hire faculty in areas that enhance research and collaboration on grand challenges

- Objective 8.1: Hire tenure-line faculty who build capacity in the grand challenge areas
- Objective 8.2: Hire fixed-term faculty who build capacity in the grand challenge areas
- Objective 8.3: Increase the diversity of applicants and hires for faculty searches

- Goal 9: Expand resources for geography research
  - Objective 9.1: Conduct development to support research visibility and professional development

Goal 7: Elevate visibility and connectedness of geography research

Objective 7.1: Develop and embrace grand challenges that unify the department

Develop grand challenges that encourage Penn State geographers to move research forward in shared directions that are important to of our vision of providing **resilient and just solutions for the future of our planet and its people.** These challenges define our mission and vision and create a departmental identity in the university and discipline. The grand challenges also mesh with the College of EMS emphases and university thematic priorities in strategic planning.

Action Item 7.1.1: Build emphases on **sustaining landscapes and livelihoods** into graduate and undergraduate courses and highlight these topics in research collaborations.

Action Item 7.1.2: Build emphases on **responding to the climate crisis** into graduate and undergraduate courses and highlight these topics in research collaborations.

Action Item 7.1.3: Build emphases on **making data science spatial** into graduate and undergraduate courses and highlight these topics in research collaborations.

Action Item 7.1.4: Emphasize **building diversity** into graduate and undergraduate courses and highlight these topics in research collaborations.

F2 Engaging Our Students
F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
SP1 Drive fundamental science relevant to critical problems.
SP2 Develop technologies for implementation.
SP3 Improve modeling capability.
SP5 Forge broad and relevant partnerships.
DI1 Create digital solutions to new and emerging challenges.

Objective 7.2: Highlight the research geographers are doing

Geographers collaborate on research across disciplines, our results inspire researchers in cognate fields, and our work is of broad interest to the public. Elevating this work to promote agency, foundation, and donor support requires an externally facing communication strategy. The department has a full-time marketing and communications staff person who solicits news, has internet watches set on faculty accomplishments, tweets daily, sends a weekly newsletter by email, and mails a summer print newsletter, as well as maintains the department website with a research section and current directory content for all members of the department. These departmental services complement College of EMS and university writers and news dissemination processes. Faculty, however, felt these processes could be enhanced to improve the way department-based research is highlighted.

Action Item 7.2.1: Spend time in **each faculty meeting**, or in a regular departmental event such as a brown bag series, to focus on emerging research ideas and research progress among faculty and graduate advisees working with them.

Action Item 7.2.2: **Highlight geographers' research** on the department website. The department has a scrolling sequence of 12 news highlights below the splash screen and below those are screen-wide panels on research and other topics which are regularly updated. Evaluate the effectiveness of this mode of changing content.

Action Item 7.2.3: Each professor and graduate student has a **department website directory** page that describes their emphases and links to a CV, Google Scholar Profile, and/or ResearchGate presence. Faculty with shared interests are grouped by research clusters (see above). Evaluate the current website structure and encourage faculty and grads to participate in posting updated content with the assistance of the marketing and communications staff person. These activities will encourage collaboration on shared interests and citation of geographers' publications.

Action Item 7.2.4: Improve on updates about departmental **research through social media**, the newsletter, and other communications. A few Penn State geography faculty have an active social media presence, from which the department can retweet or otherwise post their news. More of these authentic voices would be an effective manner of getting the word out on research progress to science writers and mass media. Examine how research news is distributed by respected peer departments and Penn State institutes, such as Rock Ethics, Sustainability Institute, and IEE.

Action Item 7.2.5: Create a departmental website section on **recently awarded grants** and contracts funded by varied external sources. The departmental proposal and award generalist staff person may collaborate with the communications staff to disseminate news on recent awards, in addition to having faculty continue to announce awards through the department's newsletter that is disseminated widely, including to alumni.

Action Item 7.2.6: Highlight the research that faculty and grads conduct that **does not have external funding** and is vital to the breadth and excellence of our program. Recognize that there are different types of geographic research and alternative forms of resource support that may suit geograpers' work.

Action Item 7.2.7: Sponsor **summer writing** projects for geography graduate students paired with faculty that emphasize dissemination of research to the wider public (such as *The Conversation, The Chronicle, Science*, news media, etc.). The Graduate School's insistence on full half-time grade-12 summer appointments may stop this program from continuing, given high costs that exceed $6,000 per student.

TE3 Support and empower our outstanding faculty and staff.
DI3 Develop a more robust digital infrastructure and culture.

Objective 7.3: Create professional development programs for faculty

Mentoring early-career faculty on Penn State resources and building connections for collaboration and constructive critique advances individuals' careers and department standing. With so many potential

directions for research training and resources, geographers can miss well-matched options that would advance their projects, whether with large groups or as individual efforts.

Action Item 7.3.1: Develop a **postdoctoral program as a pipeline for URM faculty** at Penn State.

Action Item 7.3.2: Generate **advice to new faculty** (and all faculty) about grant writing by facilitating meetings with federal agency program officers (such as NSF, NIH, NASA, ONR, USGS, etc.) and Penn State research administration services through OSVPR, ADGER, and institutes.

Action Item 7.3.3: Provide a **'red-team' review** process for new faculty writing proposals. A potential inspiration is the mechanism for friendly reviews used by SIRO and proposed by the Ecology Institute.

Action Item 7.3.4: Advocate that early-career faculty **build links to other research communities** such as centers, institutes, and other departments to explore similar research interests. Applying for Penn State research seed funds often requires cross-college collaborations, and these affiliations help new faculty build connections.

Action Item 7.3.5: Encourage ADGER to develop **repositories of links and funding deadlines** by discipline. Point faculty to Penn State's InfoReady platform where they can see all the deadlines posted <https://psu.infoready4.com/>

Action Item 7.3.6: Train, encourage, and support (see 7.4.3) faculty and graduate students to enter their research into **open-access data repositories** to further advance work on their topics (with attention to confidentiality requirements).

TE3 Support and empower our outstanding faculty and staff.
DI3 Develop a more robust digital infrastructure and culture.

Objective 7.4: Devote departmental resources to support geography research

Resources for and collaboration on research encourages larger and high-impact projects. As a research university, Penn State has a sophisticated infrastructure in place that supports research. The university Senior Vice President for Research offices (OSVPR), which includes the Strategic Interdisciplinary Research Office (SIRO), and the College of EMS Associate Dean for Graduate Education and Research (ADGER) offices are examples available to geographers. Investments in research training and funding by the department may complement the gaps in these services, though duplicating them is not intended.

Action Item 7.4.1: Create a **faculty service role with the focus on research highlights**, research mentorship, and connecting faculty with assistance on writing grants and other EMS and university training related to research. This function is currently served by one-on-one mentor relationships assigned within the department.

Action Item 7.4.2: Fund participation in a departmental (or EMS or AAG) **summer workshop** that mentors grant writing and research innovation. Senior and junior faculty could create teams for external proposals in a supportive atmosphere.

Action Item 7.4.3: Encourage **open-access publication** of research publications in top journals to encourage recognition, citation, and access by scholars at resource-poor institutions, such as in developing countries. Support open access fees with departmental funds (these can be very high, such as $3,000 an article).

Action Item 7.4.4: **Fund page charges** or similar publication fees for geography faculty and their graduate student co-authors. Focus on journals deemed effective in garnering recognition (high ISI rating) and citation of publications.

Action Item 7.4.5: Consider whether a department-based set of **seed grants** can effectively complement the many Penn State seed grant programs already ongoing (IEE, SSRI, ICDS, CSRE, humanities, teaching, etc.). The purpose of seed grants is to move forward to large external grant proposals. This topic offers a potential EMS development opportunity as well (listed below).

TE3 Support and empower our outstanding faculty and staff.
DI3 Develop a more robust digital infrastructure and culture.

Goal 8: Hire faculty in areas that enhance research and collaboration on grand challenges

Objective 8.1: Hire tenure-line faculty who build capacity in grand challenge areas

The tenure line hires listed are designed to connect faculty across sub-fields and increase expertise in areas of the department's grand challenges (see Objective 7.1), improving both teaching and research breadth and depth in geography, EMS, and the university. The seven positions are not listed in a priority order. We also have an explicit objective (8.3) to increase diversity in faculty hires, recognizing the benefits that a diverse faculty has in teaching, research and departmental culture:

A. Identity and Inequality
B. Climate Justice
C. Urban Environments
D. Ecohydrology and Complex Systems
E. Disaster Resilience
F. Earth Systems Modeling and Land Change Science
G. Spatial Data Science

Action Item 8.1.1: Hire A. **IDENTITY AND INEQUALITY**: Assistant Professor of Geography with specialization in the study of inequality as it relates to questions of race and other intersectional identity markers such as gender and sexuality. The study of identity is foundational to geography and attends to pressing issues of diversity as well as inequity in society. Example emphases for this faculty hire include the intersectional study of socio-spatial productions and interventions into white supremacy and racial capitalism; settler colonialism; Black/Latinx/Indigenous health disparities; the production of Black/Latinx/Indigenous socio-spatial resistance; migration; and Black/Latinx/Indigenous urban politics and resistance.

F3 Advancing Inclusion, Equity, and Diversity
TE1 Advance the frontiers of knowledge.

Action Item 8.1.2: Hire B. **CLIMATE JUSTICE**: Assistant Professor of Geography who studies the intersection between climate science and the spatial patterns of its inequitable impacts on human systems at local, regional, or global scales. Bridging qualitative and quantitative approaches, this position would link across sub-disciplines in geography and related fields to characterize, predict, and mitigate racial, economic, cultural, and gender-based injustices related to environmental stressors caused by a changing climate.

F3 Advancing Inclusion, Equity, and Diversity
F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
SP1 Drive fundamental science relevant to critical problems.
SP3 Improve modeling capability.
SP5 Forge broad and relevant partnerships.

Action Item 8.1.3: Hire C. **URBAN ENVIRONMENTS**: Assistant Professor of Geography who advances research in some combination of the following thematic areas within urban environments: uneven social and environmental processes, climate justice, social and environmental justice, climate and social movements in urban environments, patterns of socio-environmental change and sustainability, urban environmental governance and environmental planning, and social difference across race and identities. The new hire will build upon existing departmental strengths in political ecology and socio-ecological systems frameworks while extending in emerging areas such as feminist political ecology and environmental justice. Research foci on qualitative and mixed-methods are also strengths sought.

F3 Advancing Inclusion, Equity, and Diversity
F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
SP1 Drive fundamental science relevant to critical problems.
SP5 Forge broad and relevant partnerships.

Action Item 8.1.4: Hire D. **ECOHYDROLOGY AND COMPLEX SYSTEMS**: Assistant Professor of Geography who studies interactions between water and Earth systems. These interactions may take place within rivers, lakes, wetlands, and estuaries, and across terrestrial ecosystems. It is only through a firm understanding of these dynamic interactions that we can predict future change in the hydrological and ecological components of landscapes. Approaches in critical physical geography or remote sensing (e.g., of soil moisture) and which focus on the spatial patterns of water quality and availability across socio-ecological systems are particularly welcome. Emphasis on systems or landscapes which impact under-represented and indigenous communities, or systems/landscapes in the Global South, is also sought.

F3 Advancing Inclusion, Equity, and Diversity
F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
SP1 Drive fundamental science relevant to critical problems.
SP3 Improve modeling capability.
SP5 Forge broad and relevant partnerships.

Action Item 8.1.5: Hire E. **DISASTER RESILIENCE**: Assistant Professor of Geography who studies how socio-ecological systems respond to disturbance or perturbation across scales. Increasingly, understanding both vulnerability and recovery to disturbance is a fundamental scientific challenge with broad environmental and social implications. This position would link datasets across spatial and temporal scales and use statistical, theoretical, and empirical tools to improve our understanding of system behavior and aid resilience planning and recovery.

Emphasis on systems or landscapes which impact under-represented and indigenous communities, or systems/landscapes in the Global South, is also sought.

F3 Advancing Inclusion, Equity, and Diversity
F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
SP1 Drive fundamental science relevant to critical problems.
SP3 Improve modeling capability.
SP5 Forge broad and relevant partnerships.

Action Item 8.1.6: Hire F. **EARTH SYSTEMS MODELING AND LAND CHANGE SCIENCE**: Assistant Professor of Geography who studies the land use and land cover changes that are dramatically reshaping Earth system processes, including agricultural production, carbon sequestration, hydrological cycles, biodiversity, and more. This geographer would study—through remote sensing (satellite, airborne, or unmanned aerial vehicle platforms) or spatially explicit land-use/land-cover modeling—the causes and consequences of land changes at regional to global scales. We envision this position focusing on landscapes that impact either under-represented or indigenous communities or landscapes in the Global South (e.g. India, Africa, Latin America), linking with related socio-ecological expertise in the department.

F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
SP1 Drive fundamental science relevant to critical problems.
SP3 Improve modeling capability.
DI1 Create digital solutions to new and emerging challenges.
DI3 Develop a more robust digital infrastructure and culture.

Action Item 8.1.7: Hire G. **SPATIAL DATA SCIENCE**: Assistant Professor of Geography with specialization in visual analytics and the ethical uses of spatial data in the context of sensor networks, urban change and development, and heterogeneous data. The professor may focus on spatial data interfaces with society, including understanding human-computer interaction and gauging real-time locations and flows of people, or on normative values surrounding the use of previously-hidden or uncollected spatial information as they pertain to the digital divide and open government. The development of future cities may feature the use of persistent spatial data to monitor and solve significant problems such as traffic, pollution, disaster management, and infrastructure degradation, while simultaneously requiring attention to vital justice and privacy concerns.

F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
SP1 Drive fundamental science relevant to critical problems.
SP3 Improve modeling capability.
DI1 Create digital solutions to new and emerging challenges.
DI3 Develop a more robust digital infrastructure and culture.

Objective 8.2: Hire fixed-term faculty who build capacity in the grand challenge areas

Fixed-term faculty (FTF) in geography specialize in teaching, research, and community outreach. The hires listed below build expertise in the grand challenge areas. The proposed community geographer hire builds the outreach and regional stakeholder connections that are meaningful for sustaining landscapes and livelihoods and responding to the climate crisis. The teaching faculty hires in Spatial Data Science support online geospatial education (OGE) in geography and increase EMS leadership in data analytics. Four FTF hires are proposed:

H. Community Geography
I. Software Development and System Design (OGE)
J. Remote Sensing and Image Analysis (OGE)
K. Geospatial Intelligence (OGE)

Action Item 8.2.1: Hire H. **COMMUNITY GEOGRAPHY**: Assistant Research Professor with expertise in GIScience and society and community mapping to work directly with students, faculty, and Pennsylvanian communities in providing resources and solutions to existing problems. Through open and collaborative dialogue with stakeholders in the state of Pennsylvania, these projects will provide concrete deliverables for residents in the state by 2025, while expanding the research and outreach footprint for the Department of Geography. The Community Geographer provides direct training for our undergraduate and graduate students that will provide actionable skills and will support their professional development. They will also facilitate greater synergies across our curriculum, while providing research opportunities through the MGIS and MS SDS online programs and Undergraduate Research Opportunities Connection (UROC). The Community Geographer will be based in the department's Gould Center.

F1 Enabling Access to Education
F3 Advancing Inclusion, Equity, and Diversity
F6 Ensuring a Sustainable Future
TE1 Advance the frontiers of knowledge.
TE2 Foster a curriculum that integrates multiple modes of delivery, while leveraging online capabilities and enhanced and emerging digital learning options.
SP1 Drive fundamental science relevant to critical problems.
SP5 Forge broad and relevant partnerships.
F5 Driving Economic Development

Action Item 8.2.2: Hire I. **SOFTWARE DEVELOPMENT AND SYSTEM DESIGN**: Assistant Teaching Professor with expertise in the development of software systems, including dynamic visual interfaces, flexible spatial database structures, and integration of computational methods for automating spatial analysis processes. Experience with Artificial Intelligence and Machine Learning and scalable computing architectures is preferred.

F1 Enabling Access to Education
F2 Engaging Our Students
TE4 Prepare our students for success in their careers and in life.
DI1 Create digital solutions to new and emerging challenges.
DI4 Make online education and personalized learning central to our 21st-century land-grant mission.

Action Item 8.2.3: Hire J. **REMOTE SENSING AND IMAGE ANALYSIS**: Assistant Teaching Professor with expertise in the use of object-based image analysis techniques, machine learning, and scalable computing to support image analysis, and the application of unmanned aerial and terrestrial systems to analyze and characterize changes on the Earth's surface.

F1 Enabling Access to Education
F2 Engaging Our Students
TE4 Prepare our students for success in their careers and in life.
DI1 Create digital solutions to new and emerging challenges.
DI4 Make online education and personalized learning central to our 21st-century land-grant mission.

Action Item 8.2.4: Hire K. **GEOSPATIAL INTELLIGENCE**: Assistant Teaching Professor with experience in developing analytical products, workflows, and applications to support geographic intelligence in a range of settings, including civil and national security, with an interest in expanding the profession into emerging fields such as supply chain risk analysis, public health, law enforcement, and other competitive decision environments characterized by complex and uncertain geographic information. Preferred knowledge includes the application of geographic information systems, remote sensing, human and sensor networks, and artificial intelligence in descriptive, predictive, and prescriptive analysis of geospatial activities.

F1 Enabling Access to Education
F2 Engaging Our Students
TE4 Prepare our students for success in their careers and in life.
DI1 Create digital solutions to new and emerging challenges.
DI4 Make online education and personalized learning central to our 21st-century land-grant mission.

Objective 8.3: Increase the diversity of applicants and hires for faculty searches

Targeted hires in specific areas designed to attract underrepresented minority (URM) candidates. There is no guarantee that these searches would result in URM candidates and URM hires, but they may attract a more racially diverse pool. Examples below emphasize co-hires and are also components in the above lists of hires, in Objectives 8.1 and 8.2:

- Black or Latinx Geography or Indigenous Studies (joint hire with AFAM or co-hire with Rock)
- Urban food desert / Indigenous Food Systems (joint hire with HHD/nutrition)
- Climate Impacts on Vulnerable or Underrepresented Communities (joint hire with MAS)
- Resilience / Ecology in Africa (joint hire with African Studies or co-hire with IEE or Huck)
- Technology in Education about GIScience to Improve Diversity in STEM (joint hire with Education)

Action Item 8.3.1: Plan a **cluster hire** in partnership with African American Studies or other units (suggestions above). Such a hire would be designed to ensure that incoming faculty would enter into a supportive community.

Action Item 8.3.2: **Identify specific URM scholars** that the Department wants to hire and try to

recruit them for targeted positions.

Action Item 8.3.3: Put language in job ads that specifically **highlights the department's diversity goals**. For example, "PSU geography has made increasing diversity a top priority in its strategic plan 2020-2025, see link here"; efforts to change the way people view PSU geography (e.g., workshops); and efforts to make our institutional structures better for minoritized groups.

Action Item 8.3.4: Increase Penn State's **visibility amongst URM** and diverse candidates by planning meetings or workshops in Penn State Geography that are likely to increase the number of diverse faculty who have visited our campus and understand our commitment to diversity. Topics of such meetings/ workshops could include: Black geographies, the intersection of geography and Indigenous studies, and the state of diversity in geography.

Action Item 8.3.5: Push for a **diversity postdoc program** at the college level to attract and mentor URM scholars who could transition into tenure-track faculty.

F3 Advancing Inclusion, Equity, and Diversity
TE3 Support and empower our outstanding faculty and staff.

Goal 9: Expand resources for geography research

Objective 9.1: Conduct development to support research visibility and professional development

Geographers' research has potential impact and attraction to scientists and the public outside the discipline. Improved resources to fund new work and disseminate results of work in progress advance both the field and the department.

Action Item 9.1.1: Attract donations to support development of a **postdoctoral program** targeted at building faculty diversity in geography.

Action Item 9.1.2: Endow an **early career faculty professorship** for assistant professors of geography**.**

Action Item 9.1.3: Fund one-semester **sabbatical-like experiences for teaching professors** that are applied for at regular intervals of service in OGE.

Action Item 9.1.4: Fund **research seed funds**, such as funding preliminary work that leads to external contracts and grants.

Action Item 9.1.5: Raise funds to sponsor **summer writing** assistantships for graduate students paired with faculty that emphasize dissemination of research outside the field.

Action Item 9.1.6: Generate funds for **community engagement** activities that are paired with geography research. Examples include pre-grant writing and planning with community members, return of results, physical returns such as resulting books from research, and humanitarian follow-up with other resources to the groups that were studied during faculty and graduate research.

Action Item 9.1.7: Support production resources for creation of public-facing media that highlight geography, such as redoing the '**Geospatial Revolution**' video series.

F3 Advancing Inclusion, Equity, and Diversity
TE3 Support and empower our outstanding faculty and staff.

GEOGRAPHY COMMUNITY

The geography staff, undergraduate majors, resident graduate students, OGE students, people teaching individual courses, fixed-term faculty, and tenure-line faculty, as well as emeritus, affiliate, and courtesy-appointed faculty, join in creating a supportive and forward-looking community. With over 1000 people in this community, the group is also large! Knowing each other is always a work in progress. We aim to be open to each other by sharing our knowledge and learning from others with different experiences than our own. The staff and full-time faculty in geography at the time of writing this strategic plan in the summer of 2020 are listed in Appendix B.

This section is organized under the following headings:

- Goal 10: Foster connections among all Penn State geographers
    - Objective 10.1: Integrate the online and resident programs
    - Objective 10.2: Change the colloquium 'Coffee Hour' structure to better involve students
- Goal 11: Advance departmental and college diversity and inclusion
    - Objective 11.1: Disrupt the reproduction of whiteness in our departmental culture
    - Objective 11.2: Change the process of evaluating teaching to be more supportive of difference

Goal 10: Foster connections among all Penn State geographers

Objective 10.1: Integrate the online and resident programs

The online teaching professors and online graduate-level students comprise the largest group in the geography community**,** and the resident community misses opportunities if the programs remain isolated from each other. We benefit from building an integrated community, particularly since we all plunged into remote teaching with the coronavirus crisis in 2020-21.

Action Item 10.1.1: Design a **teaching environment** where all faculty feel connected as a community and to the academic discipline of geography.

Action Item 10.1.2: Develop incentives and recognition strategies for all qualified faculty to **advise** both online and resident graduate students.

Action Item 10.1.3: Foster an environment where students and faculty have opportunities to take and teach **classes across the resident and online** programs.

F3 Advancing Inclusion, Equity, and Diversity
TE2 Foster a curriculum that integrates multiple modes of delivery, while leveraging online capabilities and enhanced and emerging digital learning options.
TE3 Support and empower our outstanding faculty and staff.
DI4 Make online education and personalized learning central to our 21st-century land-grant mission.

Objective 10.2: Change the colloquium 'Coffee Hour' structure to better involve students

The department's "Coffee Hour" colloquium series in its present form may have outlived its usefulness as a community-building mechanism. If we decide collectively that we need a Coffee Hour-esque recurring colloquium event that (1) helps increase the geography department's sense of community, and (2) improves its external visibility regarding cutting-edge research that is highly topical, then the following actions are suggested.

Action Item 10.2.1: Shift the colloquium event to a **different time/day** so that more faculty and graduate students choose to be involved.

Action Item 10.2.2: **Identify 'hot'** (cutting-edge, timely) issues for which highly appealing/renowned speakers could be brought in relatively quickly, particularly around the grand challenge issues described in previous sections. This requires being nimble in event programming which is a departure from the semester-length planning approach we have used up to this point.

Action Item 10.2.3: Improve the **visibility of events** on the geography department web page and explore additional ways to get the word out to the college, the university, and the broader State College and Centre County communities.

Action Item 10.2.4: Schedule research talks from **graduate students** that are longer and more in-depth (longer than multi-student "lightning talk" sessions).

F1 Enabling Access to Education
F2 Engaging Our Students
F3 Advancing Inclusion, Equity, and Diversity
TE3 Support and empower our outstanding faculty and staff.

Goal 11: Advance departmental and college diversity and inclusion

There is broad agreement from geography faculty, graduate students, and undergraduate students that the department should prioritize diversity, particularly racial/ethnic diversity through all teaching, research, and service programs. Increasing diversity has tangible benefits for our students, our research community, and our outreach efforts. For our purposes we specifically look at the Penn State definition of underrepresented minority candidates (URM) since the department has high levels of diversity in other aspects of diversity such as academic variety and gender diversity.

Diversity objectives are interwoven through this document with topics in teaching, research, and hiring, in addition to within the community section (see examples: 1.3.1, 2.1.2, 3.1.1-3, 5.2.1-2, 7.1.4, 7.3.1, 8.1.1-6, 8.3.1-5).

Note: Underrepresented minority (URM) ethnicity and race categories emphasized within Penn State Affirmative Action policies are specific to American citizens who self-identify as Hispanic/Latinx ethnicity and/or Black/African American, American Indian/Native Alaskan, Native Hawaiian/Pacific Islander, and people of two or more races, when one or more races are from the preceding categories.

Objective 11.1: Disrupt the reproduction of whiteness in our departmental culture

Many actions, working in tandem and not exclusive of each other, have the potential to help recruit and retain URM candidates, to create institutions within our department to work against the current inertia of reproducing whiteness in faculty hires, and to create a welcoming and safe environment.

Action Item 11.1.1: The creation of an internal **department report card** regarding recruitment processes for diversity. This would include benchmark metrics (e.g., how many URM candidates have applied to positions over the past five years, how many have been long-listed, short-listed, and invited for interviews).

Action Item 11.1.2: Create a committee to **review literature on retention** of URM faculty (what are the top reasons people leave, and what are best practices for institutions to better support URM faculty?) and study best practices from other departments with track records of retaining URM faculty so these practices can be actuated.

Action Item 11.1.3: Work with the Penn State Affirmative Action Office and/or use job applicants' diversity statements to ascertain the **diversity of the pool** (and long-list and short-list) in future searches. As with current practice, if the pool is not diverse, the hiring committee re-evaluates their rankings of the job applicants.

Action Item 11.1.4: Encourage the College of EMS to include two additional questions in our annual **Faculty Activity Report** process:

a. "Creating a welcoming climate, thereby maximizing success for all of our members is an important goal for the college. List your contributions to this goal here:"

b. "Increasing the participation of women and under-represented minorities is an equally important goal at the department, college and university levels. List the contributions you have made toward increasing diversity with respect to your instructional, research, and service activities:"

F3 Advancing Inclusion, Equity, and Diversity

Objective 11.2: Change the process of evaluating teaching to be more supportive of difference

Student Rating of Teaching Effectiveness (SRTE) evaluations have been shown in multiple studies to be biased against women and URMs—at Penn State, nationally, and internationally. Portfolio-based approaches to teaching evaluation have long been encouraged in Penn State's AC-23 Guidelines as an option for promotion and tenure decisions at Penn State, but few departments make use of them. Student ratings are also used to evaluate fixed-term faculty for contract renewal. Alternative forms of teaching evaluation may improve all these decisions.

Action Item 11.2.1: Actively moving toward creation of **teaching portfolios** by professors with their evaluations by peers being included in letters of reappointment, annual review, and promotion and tenure materials.

Action Item 11.2.2: Addition of **teaching reflections by faculty**, such as describing the intellectual work of teaching, in reappointment, annual review, and promotion and tenure materials. These reflections provide more concrete information than a teaching philosophy (e.g., as stated in a dossier narrative) and provide a third form of evidence that balances with student ratings and peer in-class

and/or portfolio evaluations.

Action Item 11.2.3: **"In-person" SRTEs** may contain less vitriolic language. An efficient interim measure would be to ask our TAs or staff to proctor SRTEs in person in a final lecture, as we did in the days of paper forms. (Note that departmental online program courses have different SRTE questions and would not suit a synchronous response process.)

Action Item 11.2.4: A mandatory **mini-course** for our geography students or in first-year seminars on what constitutes an effective SRTE response.

Action Item 11.2.5: Remove or change the **B-section questions** on all department SRTEs to improve wording and remove phrases that prime biased responses in open-ended text students write (see https://www.srte.psu.edu/SRTE_Items/).

F3 Advancing Inclusion, Equity, and Diversity
TE3 Support and empower our outstanding faculty and staff.

Appendix A. Selected University-Requested Strategic Planning Codes

Full set at https://psu.app.box.com/s/sm3iltsh8thm398hnpsh3orv9rxpctzg, including "Advancing Health" and "Advancing the Arts and Humanities" codes omitted below.

From https://strategicplan.psu.edu/planning-resources/ at link named 'template outlining the format.'

Foundation

F1 *Enabling Access to Education*
F2 *Engaging Our Students*
F3 *Advancing Inclusion, Equity, and Diversity*
F4 *Enhancing Global Engagement*
F5 *Driving Economic Development*
F6 *Ensuring a Sustainable Future*
F0 *No Foundation Connection*

Thematic Priorities

Transforming Education

TE1 *Advance the frontiers of knowledge.*
TE2 *Foster a curriculum that integrates multiple modes of delivery, while leveraging online capabilities and enhanced and emerging digital learning options.*
TE3 *Support and empower our outstanding faculty and staff.*
TE4 *Prepare our students for success in their careers and in life.*
TE5 *Partner more effectively with pre-college educators.*
TE *Transforming Education - no specified sub-classification*

Stewarding Our Planet's Resources

SP1 *Drive fundamental science relevant to critical problems.*
SP2 *Develop technologies for implementation.*
SP3 *Improve modeling capability.*
SP4 *Fully engage our research infrastructure.*
SP5 *Forge broad and relevant partnerships.*
SP *Stewarding Our Planet's Resources - no specified sub-classification*

Empowering through Digital Innovation

DI1 *Create digital solutions to new and emerging challenges.*
DI2 *Living with digital innovation.*
DI3 *Develop a more robust digital infrastructure and culture.*
DI4 *Make online education and personalized learning central to our 21st-century land-grant mission.*
DI5 *Drive economic development.*
DI *Empowering through Digital Innovation - no specified sub-classification*

Appendix B. Departmental Strategic Planning Process Notes

Departmental Committee

The departmental Strategic Planning Committee was established in July 2019:

Lorraine Dowler (chair), Trevor Birkenholtz, Anthony Robinson, Luke Trusel, Jim Detwiler, Bradley Hinger (grad)

The committee conducted a survey of department faculty in December 2019 for ideas to seed the departmental retreat planned for January 2020. The survey was constructed using a SOAR methodology, administered using Qualtrics, and asked the following open-ended questions:

- What does our Department do well? You may note key departmental resources, capabilities, and accomplishments to clarify your response.
- Provide an expression of what you want our Department to be and for it to achieve in the future in terms of our science, teaching, and community.
- What is an action that our Department should take to improve our science, teaching, and community.
- What are the tangible outcomes and measures that will demonstrate that we have achieved our goals and aspirations?

All-day Strategic Planning Retreat

The departmental retreat was held in the Hintz Center in January 2020. All notes from breakouts and discussions were typed into pre-formatted and shared Google docs on the spot, so ideas were readily available for projection and presentation, as well as later summary and writing.

Agenda:

A. Get started
8:30-8:45 – Gather, coffee and snacks
8:45-9:00 – Intro, structure of day, breakout group assignments (Brewer)

B. Who We Are
9:00-9:40 – Breakouts (40 min, concurrent topics)
"What we do well"
"What should we be"
9:40-10:20 – Breakout leaders report, discussion as whole,
Robinson moderates discussion (40 min)

10:20-10:40 – Break

C. How to Get There
10:40-11:20 – Breakouts (40 min, concurrent topics)
"What actions should we take"
"What outcomes will we measure"
11:20-noon – Breakout leaders report, discussion as whole,
Downs moderated discussion (40 min)

Noon-12:40 – Catered Lunch
Grad reps & Hinger invited to join for lunch and afternoon sessions

D. Education
12:40-1:20 – Breakouts (40 min, concurrent topics)
Undergrad resident & online programs
Graduate resident & online programs
1:20-2:00 – Breakout leaders report, discussion as whole,
Dowler moderated discussion (40 min)

2:00-2:20 – Break

E. Supporting Research
2:20-3:00 – Breakouts (40 min)
3:00-3:50 – Breakout leaders report, discussion as whole,
Smithwick moderated discussion (1 hour)

4:00-5:00 – Catch up and wrap up
Brian King moderated discussion (1 hour)

Retreat Attendees:

Josh Inwood
Todd Bacastow
Luke Trusel
Sarah Chamberlain
Jenn Baka
Lorraine Dowler
Guido Cervone
Bronwen Powell
Manzhu Yu
Andrew Carleton
Panos Giannakis
Cindy Brewer
Roger Downs
Fritz Kessler
Erica Smithwick
Brian King
Karl Zimmerer
Karen Schuckman
Ryan Baxter
Emily Rosenman
Alan Taylor
Greg Thomas
Helen Greatrex
Jim Detwiler
Melissa Wright
Alex Klippel
Justine Blanford
Bradley Hinger (grad)
Connor Chapman (grad rep)
Zach Goldberg (grad rep)
Ruchi Patel (grad rep)
Anthony Robinson
Alan MacEachren
Jodi Vender

Spring Faculty Meeting Agenda Items on Strategic Planning

- Mission/Vision planning (February 2020)
- Grand Challenges planning (February 2020)
- Subgroups on three topics were planned immediately after the retreat to further discussed key topics and they presented summaries in a March 2020 faculty meeting:

  Subgroup 1 - Add diversity: Emily Rosenman (chair), Helen Greatrex, Brian King, Alex Klippel, Bronwen Powell

  Subgroup 2 - Elevate geography research, including visibility: Manzhu Yu (chair), Jenn Baka, Guido Cervone, Josh Inwood, Alan MacEachren, Erica Smithwick, Karl Zimmerer

Subgroup 3 - Improve graduate programs, integrate across online and resident: Andrew Carleton (chair), Roger Downs, Alan Taylor, Karen Schuckman, Ryan Baxter, Todd Bacastow

Spring 2020 discussions were cut short by the change to remote instruction during the pandemic, but departmental activity continued into the summer with:

- Working group on anti-racism
- Responses to hiring proposals
- Two rounds plus reminders for community edits to drafts of the departmental plan, were organized by Cindy Brewer. Twenty professors and two grads contributed ideas and edits through these versions and Cindy completed the document.

EMS College 'Uber' Committees for Strategic Planning

The EMS uber committee chairs presented discussion results to EMS Executive Council in late Spring 2020. Geography members of the Thematic Priority groups are listed below:

- Stewarding our Planet's Resources: Alan Taylor (EESI rep), Luke Trusel
- Driving Digital Innovation: Guido Cervone (EESI rep), Alex Klippel
- Transforming Education: Jim Detwiler, Roger Downs
- Enhancing Health: Trevor Birkenholtz, Alan MacEachren
- Advancing the Arts and Humanities: Anthony Robinson, Karl Zimmerer

Appendix C. Listing of Full-time Members of the Department, July 2020

Tenured and Tenure-Track Geography Faculty

Jennifer Baka, Assistant Professor — energy geography, political ecology, industrial ecology, governance

Trevor Birkenholtz, Associate Professor — political ecology, development, social theory, nature-society relations, gender-dynamics, South Asia, water resources

Cynthia Brewer, Professor — cartographic communication and visualization, map design, color theory, multi-scale mapping, atlas production

Andrew Carleton, Professor — climatology, paleo-climatology, climate dynamics, climate impacts of aviation contrails, human impacts on climate, climate variability and change, land surface-climate interactions, polar climatology, polar lows, Southern Ocean, Antarctica

Guido Cervone, Professor — remote sensing, environmental hazards, geoinformatics, social media, spatial statistics, complex economic systems

Robert Crane, Professor — climatology, regional scale climate change, African climates

Lorraine Dowler, Professor — social theory, cultural geography, gender, qualitative methods

Roger Downs, Professor — spatial cognition, cognitive development, geography education, behavioral geography

William Easterling, Professor — environmental change, agricultural systems, climate, renewable natural resources, land use

Christopher Fowler, Associate Professor — inequality, population, scale, economic, urban, race, segregation

Helen Greatrex, Assistant Professor of Geography and Statistics — geostatistics, satellite rainfall estimation, weather risk management, index insurance, agricultural modeling, humanitarian weather response

Louisa Holmes, Assistant Professor — health disparities, socio-spatial determinants of health, tobacco control, substance use, quantitative and geospatial research methods, survey research, area-level observational studies

Joshua Inwood, Associate Professor — social and racial dimensions of human vulnerability, global ethics

Brian King, Professor — development, conservation, Southern Africa, cultural and political ecology, health, livelihoods, justice

Alexander Klippel, Professor — 3D modeling, virtual and augmented reality, geographical information science, spatial languages, geographic event conceptualization, behavioral research methods

Alan MacEachren, Professor — visual analytics, geovisualization, geographic information retrieval, place and big data

Nathan Piekielek, Geospatial Services Librarian and Associate Professor of Geography — GIS and remote sensing, informatics, conservation ecology, big historical geodata

Bronwen Powell, Assistant Professor of Geography and African Studies — social, cultural, and environmental drivers of diet quality and food security, relationships between biodiversity and human nutrition

Anthony Robinson, Associate Professor — geovisual analytics, cartography, user-centered design, geovisualization, information visualization

Emily Rosenman, Assistant Professor — urbanization, housing, financialization, philanthropy, higher education

Erica Smithwick, Professor — landscape ecology, ecosystem ecology, biogeochemistry, fire ecology

Alan Taylor, Professor — disturbance and climate effects on vegetation, landscape ecology, biogeography, biological conservation, environmental management, fire ecology, paleoecology

Luke Trusel, Assistant Professor — climate variability and change, ice sheet surface mass balance, ice core paleoclimatology, remote sensing

Shujie Wang, Assistant Professor — remote sensing, machine learning, numerical modeling, ice flow dynamics, snow/ice albedo, glacier algae

Melissa Wright, Professor of Geography and Women's, Gender, and Sexuality Studies (WGSS) — social theory, feminist theory, political economy, Mexico-U.S. border, qualitative methods

Manzhu Yu, Assistant Professor — geographic information science, spatiotemporal theories and applications, big data and cloud computing, natural hazards and extreme weather, environmental informatics, spatial data science and deep learning

Karl Zimmerer, Professor — land use and agriculture change, environmental impacts (biodiversity, soils, water), economic development, nature-society theory, human-environment modeling

Full-time Fixed-Term Geography Faculty

Todd Bacastow, Teaching Professor — GIS, geospatial intelligence, geospatial analytic methods

Ryan Baxter, Associate Teaching Professor — geographic information systems, cloud and server technology, environment, energy

James Detwiler, Associate Teaching Professor — GIS programming and customization, climatology, distance education

Panagiotis Giannakis, Assistant Teaching Professor — proximity dynamics, economic & industrial geography, networks analysis, GIS, corporate governance

Adrienne Goldsberry, Assistant Teaching Professor— geographic information systems, urban planning, distance education

Fritz Kessler, Teaching Professor — map projections, datums, coordinate systems, cartography, geovisualization, spatial statistics, spatial analysis

Elizabeth King, Associate Teaching Professor — geographic information systems, adult education, problem-based learning

Michael Nassry, Assistant Research Professor — water resources, ecological condition assessments, climate change impacts on the structure and function of aquatic systems, meltwater supported landscapes

Karen Schuckman, Associate Teaching Professor — remote sensing, geospatial technology, photogrammetry

Gregory A. Thomas, Associate Teaching Professor — intelligence analysis, law enforcement

Denice Wardrop, Research Professor — landscape ecology, wetland plant communities, effects of human disturbance on wetland ecosystems, wetland condition assessment

Michelle Zeiders, Assistant Teaching Professor — geographic information systems, spatial databases, environmental applications

Full-time Staff in Department of Geography [with person holding position in July 2020]

Administrative Support Coordinator (supervises four staff members in main office): Office manager; human resources; visas; salaries; sabbaticals; general and research budget administration; awards; endowments; annual faculty activity reports; facilities. *[Denise Kloehr]*

Proposal and Award Generalist (Research): Proposal preparation and submission, including subawards; Administer amendments or continuations; monitor grant and contract balances, fulfill reporting requirements, and compose closing documents; promotion & tenure dossiers, 5-year post-tenure reviews (FPE). *[Marnie Deibler]*

Graduate Program Assistant: Manage graduate applications and admission process; coordinate and process Graduate School paperwork; process fellowships and assistantships; advise graduate students and faculty on policies and procedures. *[Judy Heltman]*

Administrative Support Assistant (Undergraduates): LionPATH and SRTE implementation; access coordinator and facilities; purchasing; safety coordinator; main office reception. *[Darlene Peletski]*

Administrative Support Coordinator (Budget): Employee reimbursement system; travel reimbursements; wage payroll; award and scholarship disbursements; faculty searches; budget monitoring; reconcile all general and restricted budget expenditures. *[Mandy Thompson]*

Academic Adviser (supervised by AHUG): Undergraduate advising for current and prospective students for entry-to-major, scheduling, degree audits, etc.; organizing connection with geography alumni; coordinating undergraduate clubs and programs such as UROC. [Jodi Vender]

Marketing Communications Specialist (supervised by HoD): Science writer; department webmaster; newsletter editor; photography and videography. [Angela Rogers]

Computer Lab Supervisor (EMS appointment): IT support provided by EMS (supervised by the EMS *Information Technology Manager*, Tom Canich) and housed in the department *[Bob Hibbert]*