

# **School of Earth, Society & Environment Strategic Plan**

**AY 2025-2026 - AY 2030-2031**



**School of Earth, Society & Environment  
College of Liberal Arts & Sciences**

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## INTRODUCTION

The School of Earth, Society & Environment (SESE) was established in 2006 to become the academic hub at the University of Illinois Urbana-Champaign (Illinois) for education and research on the Earth system and its populations.

SESE resides in the College of Liberal Arts & Sciences (LAS), and consists of the Department of Climate, Meteorology & Atmospheric Sciences (CliMAS), Department of Earth Science & Environmental Change (ESEC), Department of Geography & Geographic Information Science (GGIS), and the Earth, Society & Environmental Sustainability (ESES) Interdisciplinary Major with its dedicated faculty.

SESE follows a de-centralized model in which each unit has distinct academic and research programs, thus requiring that each unit retain relative autonomy on curriculum and hiring decisions as well as on strategic initiatives. This has been essential for the career successes of all students across SESE, and otherwise allows each unit to continue to build its excellent external reputation. Furthermore, given the wide variety of methodologies and paradigms practiced by the faculty, which encompass the physical sciences, computational sciences, social sciences, and humanities, the individual departments are better positioned to evaluate and support faculty research. Each department has an executive officer, the Head, who interacts with the SESE Director.

The de-centralized model allows the School to focus on and facilitate the success of the individual units. For example, the SESE business and IT offices, which serve all three departments and the ESES program, provide services that could not be easily supported by each unit individually. The School also promotes cross-disciplinary education and collaborative research. Finally, the footprint of SESE is optimized at the College and University levels for resource allocation and amplified impacts. Overall, SESE's structure strikes a balance between the advantages of combined efforts versus the strengths and identities of the four units.

The three departments within SESE have separate strategic plans that describe in detail their operations and strategies for success. This plan focuses mostly on *goals that are actionable – and evaluative– at the School level*. Evaluation metrics are included below each goal. Such evaluation will be conducted annually using DMI as well as internally maintained data, and will include School-administered surveys.

## GUIDING PRINCIPLES

The five-year strategic plan is guided fundamentally by our vision and mission:

### **Vision:**

A world with a fundamental appreciation of the Earth and its populations as a complex and fragile system, subject to change from external as well as internal influences; and one with an understanding and information necessary to make decisions for the benefit of all.

### **Mission:**

To enable a world-class education for a diverse body of students, training them to be future leaders, and challenging them to pursue careers of discovery and service to humanity; to support and facilitate research on the most critical problems regarding the Earth system and its populations; and to help educate the public on crucial issues about the Earth and its societies and environments.

## PROCESS TO DEVELOP THE STRATEGIC GOALS

A planning retreat was held in August 2024 involving Executive Committee (EC) members or their proxies. This was followed by discussions during EC meetings to refine the goals, and culminated in a draft strategic plan that was posted for open comments by SESE faculty and staff in March 2025. The finalized plan was approved by the EC in April 2025, and then presented to the SESE faculty and staff in Fall 2025.

## SESE STRATEGIC GOALS

The SESE strategic goals for the academic years 2025-2026 through 2030-2031 are as follows:

1. Exploit research synergies between SESE departments and across closely affiliated departments, institutes, and centers
2. Identify and enhance instructional synergies across the SESE units
3. Establish sustainable support for the ESES undergraduate program, to allow for program growth and to maximize student success
4. Ensure that all SESE faculty, staff, and students have adequate physical space for their respective activities
5. Develop a long-term, sustainable model for Keeling, NHB IT infrastructure, and other SESE facilities
6. Inspire life-long service to SESE by encouraging financial as well as philanthropic contributions from its alumni and other potential donors
7. Increase the visibility of the School across the campus, state, nation, and world
8. Enhance the quality, efficiency, and efficacy of the School's business operations and IT support
9. Enrich the environment of SESE so that it is welcoming and promotes respect and value of all
10. Support the growth of all academic programs within SESE

- **Exploit research synergies between SESE departments and across closely affiliated departments, institutes, and centers**

GGIS, ESEC, and CLIMAS each have nationally and internationally recognized research programs, but *SESE-wide* awareness of the associated domain expertise and the potential for cross-departmental collaboration has yet to be fully realized. The School will work to realize this goal by enhancing and better promoting events such as the monthly brown-bag research presentations and SESE colloquia. The recently established Marshak Speaker Fund will be used to help support these events. Cross-departmental, inter-disciplinary grant-proposal opportunities will be communicated using the *SESE Message*, the School's new weekly newsletter. The *SESE Message* will also be used to communicate information about seminars, colloquia, and other opportunities in closely affiliated units including the School of Integrated Biology, Department of Civil and Environmental Engineering, Department of Natural Resources and Environmental Science, Department of Agriculture and Consumer Economics, Center for Latin American & Caribbean Studies, Carle Illinois College of Medicine, and others with which we seek to build a relationship.

Likewise, although some SESE faculty members have already made strong connections with Illinois institutes including the National Center for Supercomputing Applications, Institute for Sustainability, Energy, and Environment (ISEE), Carl R. Woese Institute for Genomic Biology, Discovery Partners Institute, and the Prairie Research Institute and its state surveys, additional potential for unique research synergies still exists. Accordingly, the School will also engage representatives from these and other institutes such as the USGS Water Science Center for brown bag presentations, seminars, and other informational meetings. This will have the dual purpose of showcasing existing alliances and projects with SESE faculty, and providing an opportunity to grow them.

Finally, the faculty cluster on Climate Impacts, Risks, and Inequality, which explicitly includes five faculty members in SESE, provides a natural means of exploiting research synergies. The School will continue to work with the office of the LAS Associate Dean for Research to build and enable the success of this faculty cohort. More generally, we will engage with LAS through the Associate Dean for Life and Physical Sciences to identify opportunities to synergize research activities across the College and University. This, in turn, will help the College realize its strategic goal of promoting and facilitating interdisciplinary partnerships.

Indeed, one outcome of all these efforts could be the pursuit of large, multi-year grant opportunities on themes related to the Earth and its society and environment, to involve most or all of areas of SESE. Another could be the leadership of research coalescence into units on topics such as climate change and water and air quality.

#### Evaluation metrics:

Number of cross-unit grant proposals submitted

Number of large (e.g., > \$10M), multi-year, interdisciplinary, school-led grant proposals submitted

Number of graduate students co-advised across units

Number publications with authors shared across units

- **Identify and enhance instructional synergies across the SESE units**

SESE faculty are experts in the physical processes that govern Earth's systems and affect human existence, and/or in the social processes and structures that control how society interfaces with Earth's spaces and processes. Our faculty collect field data, conduct laboratory experiments, analyze large geophysical and geospatial datasets, apply advanced scientific programming, and use sophisticated statistical as well as qualitative methods. Such collective expertise is exploited for novel courses including water and energy resources, environmental justice, sustainability, environmental risk assessment, climate change, and environmental policy, as well as in courses on GIS, Python programming, data science, and scientific communication.

However, as with research synergies, SESE-wide awareness of these courses has yet to be fully realized, especially those that may have broad appeal and applicability. The School will help raise awareness through highlights of new and existing courses in the *SESE Message*. Additionally, prior to each course registration period, the School will coordinate with each unit and publish an accessible list of courses for the coming semester, with some indication of approachability and potential applicability to students across degree programs. This will be done for undergraduate as well as graduate courses, including those associated with online M.S. degree and graduate certificate programs. Here we note that pre- and co-requisites may create enrollment barriers, so the units will be encouraged to re-evaluate these to determine their necessity.

The compilation of this list will help the School identify and encourage synergies. Moreover, the overall actions underlying this goal will simultaneously reduce duplication of faculty effort while providing students with a wide range of elective courses to satisfy their specific career objectives, obtain a comprehensive education centered on Earth, environment, and society, and develop skills needed to succeed in those careers.

Evaluation metrics:

Number of students in other SESE Department course

Number of courses with >20% students from other SESE Department

Number of courses taught by instructors from multiple SESE Departments

Number of courses that satisfy major requirement from other SESE Departments

- ***Establish sustainable support for the ESES undergraduate program, to allow for program growth and to maximize student success***

The School's undergraduate program in Earth, Society & Environmental Sustainability (ESES) began in 2007 and currently has ~200 enrolled majors. It is one of the most efficient academic programs on campus with one of the highest ratios of students to faculty of any major. Even with this lean model, the program has been highly innovative in both course content—including certificates in Environmental Writing and Environmental Sustainability—and in form, with an emphasis on blended, experiential, and field-focused classes. Accordingly, ESES graduates are successfully entering their desired careers or progressing to advanced degrees. Here it is noted that ESES students pursue employment principally in environmental and sustainability fields, thus reflecting the academic direction of this major toward a focus on environmental sustainability.

Most ESES students are on-campus, but it is also possible to pursue the ESES degree online. This is the only online undergraduate degree at the University. The online program has been net-revenue generating for both the College and the School since its inception, and has simultaneously funded courses that are available to on-campus students.

Despite its efficiency, the current teaching structure has a fundamental weakness in that only one of the faculty positions specifically devoted to the ESES program, the Associate Director for Academic Affairs, is supported by state funds. The two other positions (as of May 2025) are supported by outside revenue streams, primarily from the online classes. Thus, two specialized faculty members (as of May 2025), the Associate Director for Academic Affairs, and (as of June 2025) an embedded LAS Academic Advisor are responsible for the academic program, including teaching core classes in the major and providing academic advising for all ~200 undergraduate majors and ~30 undergraduate minor and certificate students. Because there is no resource slack, we are unable to pursue opportunities that would grow the major, and are severely limited in our ability to offer student opportunities that require significant time investment, especially mentorship of undergraduate research.

The School will advance actions to promote ESES program growth while maximizing student satisfaction and success. For example, in concert with Goal #2, the School will redouble its efforts to encourage faculty in the three SESE departments to offer more ESES-relevant courses. We will also pursue all opportunities for recurring funding of two teaching-faculty positions and teaching assistants. Funding from donors in the form of endowments is one such opportunity. Program growth is expected to result from the active proposal to rename the major to Environmental Sustainability; as noted, this name more accurately reflects the academic focus of students in the major. The name change is further motivating an exploration of a formalization of an academic program: the Program of Environmental Sustainability within SESE. This would serve as the clear and unambiguous academic home of the ESES students, who lack a sense of belonging within SESE. It would also serve as the clear home of education in environmental sustainability, thus distinguishing – and complementing – it from the outreach and research activities of iSEE. It is noted that the ESES program already exists in function, which includes approved degrees, an existing leadership structure (the Associate Director for Academic Affairs directs the program), and clerical and IT support.

#### Evaluation metrics:

Dollars of sustainable funding for ESES instruction

Numbers of ESES courses offered by faculty in the three SESE departments

Number of ESES majors

Surveyed satisfaction by ESES majors on academic programs

- ***Ensure that all SESE faculty, staff, and students have adequate physical space for their respective activities***

In 2017, after a multi-year, \$72 million renovation, the Natural History Building was opened for occupancy by SESE faculty, staff, and students as well as by a portion of SIB's teaching faculty and staff. We are extremely grateful for NHB, which provides modern facilities in an ideal campus location. Owing to recent growth of many of the SESE programs, we have, however, reached maximum capacity in terms of faculty and staff office space, and near capacity for graduate-student space. The obvious implication is that future growth is inhibited, especially to accommodate personnel of proposed centers and institutes of excellence.

The School has and will continue to implement ways to make more efficient use of existing space. Recent examples include the conversion of the under-utilized SESE Student Computer Lab (NHB 1088) into office (cubicle) space for postdocs and research scientists, and the conversion of NHB 4051, which previously held the large-format poster printer, into office space for CliMAS clerical staff. Construction of new walls in the open area of NHB 3086 (SESE Administration) is under exploration to provide additional space for ESES faculty; in need of a feasibility study is the possible reconfiguration of the SESE Business Office suite (NHB 3088) to allow for private, i.e., closed-door offices necessary for confidential discussions related to HR, finances, etc. The School will conduct an audit to identify suboptimal office space usages (e.g., as storage or meeting rooms), and will formalize policy for office space used by emeritus faculty to yield more space in NHB; assignment of emeritus faculty to available offices outside of NHB is one of several possible options. We will explore the possibility of paradigm shifts in office space, including "hot desking" and "hoteling", which could be appropriate for those who tend to favor work at their home offices. Finally, for longer-term planning, we will develop a 5- and 10-year projection based on known and anticipated activities.

Evaluation metrics:

Number of faculty, staff, and students with and without adequate space

Surveyed satisfaction of space

Increase in percentage of optimally used space, as measured by the space audit

- ***Develop a long-term, sustainable model for Keeling, NHB IT infrastructure, and other SESE facilities***

SESE's high-performance computing cluster, Keeling, is currently composed of 208 compute nodes and roughly 10 PB of storage. Much of Keeling's hardware has been added through department-funded faculty startup agreements and additional departmental and SESE contributions. Other hardware additions and replacements are supported through SESE funds, and by external research grants to SESE investigators. As enabled by this mix of funding, Keeling is utilized by students, faculty, and staff for funded and unfunded research projects as well as for coursework: during a typical week, Keeling is accessed by more than 50 unique users. For computationally intensive applications, Keeling's operating model allows unused compute cycles to be distributed among users through the SLURM batch system.

Although Keeling has been in continuous operation in some form since 2005, this invaluable resource lacks a plan for its long-term future operation. The School will establish a fair and sustainable financial model for the evolution, upgrade, and support of Keeling. Based on this model, the School will also develop specific guidance for SESE investigators for their budget requests in grant proposals.

Also lacking is a specific plan for the evolution and upgrades to IT infrastructure within NHB. This includes A/V and computer systems within SESE-managed conference rooms and classrooms, including specialized classrooms such as the GIS/Synoptic Computer Laboratory and Microscope Teaching Laboratory. A plan is necessary given that the systems and other equipment were installed during the NHB renovation and therefore are quickly becoming outdated. The School will engage with LAS and the University to identify possible opportunities for the funded upgrades and replacement of these systems.

Finally, the School will, as feasible and appropriate, help the three departments maintain and grow their essential laboratories, field equipment, and related facilities. This includes laboratory and storage space on and off campus.

Evaluation metrics:

Number of A/V upgrades

Implementation of financial model for Keeling

Ratio of \$ sustainable funding/\$ ongoing costs for Keeling

- *Inspire life-long service to SESE by encouraging financial as well as philanthropic contributions from our alumni and other potential donors*

Because of the relative youth of the ESES program—and of the School itself—we have not yet implemented an organized effort to encourage ESES alumni contributions and other contributions specifically directed to SESE. However, ESES graduates are successfully pursuing their desired careers, including in environmental and sustainability consulting, and many should be at career and life stages that allow for at least modest financial as well as philanthropic contributions to SESE. We will explore the creation of an External Advisory Board that will have two objectives: (1) facilitate financial contributions from alumni, and (2) enhance the interaction of alumni with our students and faculty. The first objective could include a formal fund-raising campaign, the development of which should involve guidance from the LAS Office for Advancement; the 20<sup>th</sup> anniversary of SESE in 2026 could provide a possible occasion for such a campaign. The second objective could, for example, result in presentations of internship and career development opportunities for our students, and/or in input on the alignment of our academic programs with the current job market.

The fund-raising efforts will require clear targets, with clear usages for the funds. Undergraduate scholarships are one obvious priority; financial assistance for experiential learning opportunities is another. In addition, the Geoscience Camp for Kids is a SESE-wide initiative in need of financial contributions for its sustainable operations.

It should be emphasized that pursuit of this strategic goal should be in harmony with like goals of the SESE departments as well as of the College and University. However, when appropriate, the School will facilitate concerted efforts to aid in fundraising goals across SESE.

Evaluation metrics:

Implementation of a fundraising campaign

Number of individual donations to SESE

Number of campus visits/contacts by ESES alumni

- ***Increase School visibility across the campus, state, nation, and world***

Over its history, the School and its units have managed their marketing and communication efforts in ad hoc ways, mostly using un-trained student and faculty volunteers. These efforts include creation and delivery of new content via webpages and social media, and of press releases on noteworthy activities and research discoveries for media outlets. The lack of a dedicated, trained professional for these efforts has severely limited our ability to raise external awareness of the excellent academic and research programs of SESE.

To address this limitation, a new marketing and communication (MarCom) specialist for SESE was hired in February 2025 through an agreement with the LAS Office for Communications and Marketing, and will be funded by the School and its departments. Through increased numbers of press releases, optimal designs of webpages, creation of promotion materials, etc., the MarCom specialist will help the School with its strategic goal of increasing the visibility of SESE’s academic programs and its footprint across campus, the State of Illinois, nationally and internationally.

Additional efforts will be required to achieve this goal, however. For example, given that SESE disciplines are often not well represented in high school curricula, we will explore actions to make more students aware of the opportunities SESE offers as excellent professional alternatives to the traditional STEM tracks most of them follow, beginning in high school. SESE will also highlight alumni success stories, since visible positive student outcomes is a key to future recruitment of the next generation of excellent SESE students. Initiatives including the Geoscience Camp for Kids represent the joint opportunity of increasing awareness of SESE to the community, and promoting our academic programs to middle-school students. A similar camp for middle/high-school science teachers will be explored.

The School will continue its presence at the Fall Meeting of the American Geophysical Union (AGU) through an academic showcase booth, and will explore sponsorship of similar booths at SACNAS’ NDiSTEM conference and the Annual Meeting of American Association for the Advancement of Science. Finally, in addition to historical presence of SESE units at the Illinois Engineering Open house, the School will explore other opportunities for local and state exposure, including organization of SESE activities on campus during Earth Week, and a possible SESE booth at the Illinois State Fair.

Evaluation metrics:

Number mentions per year of School and Departments in “Illinois in the News” (daily news digest for U. of I. News Bureau) and the “LAS News”

Number of mentions per year of School and Departments in local and regional media such as the *News-Gazette*

Numbers of invited presentations per year by SESE faculty at conferences, symposia, colloquia, etc. held outside the U.S.

Number of SESE-authored journal articles per year with international co-authors

Year-over-year growth in visits to the School and Department websites

- ***Enhance the quality, efficiency, and efficacy of the School's business operations and IT support***

In its de-centralized school model, SESE provides infrastructure to facilitate the successful operations of the individual units. Business-office support includes grant proposal processing, grant financial management, purchasing, budgeting and financial services, academic and student appointments, business travel, and course activities such as field trips. IT support includes desktop computing, high-performance computing (Keeling), class- and conference- room A/V, and networking and other IT hardware within NHB and ACB. Finally, coordination of the graduate online programs is now also provided by the School.

The SESE team recognizes that the quality, efficiency, and efficacy of this support can be improved. Challenges to achieve this strategic goal include the lasting effects of the COVID-19 pandemic on team communication and interaction, a high rate of personnel turnover over, and a workload that appears to exceed the current capacity of the existing positions; all of these are inter-related to some degree.

The School's leadership will continue to implement new team-building activities, training, incentives, and recognitions to improve the workplace environment and culture. We will collect satisfaction as well as complaints feedback and provide this to the SESE team to improve the quality of services. We will consider a ticketing system for the business operations similar to the one used for IT support. We will also engage with other units across campus to identify possible ways to enhance our operations. The University's Operational Excellence initiative has already led to such opportunities that the School has exploited. Specifically, SESE recently entered into an agreement with LAS in which an LAS team provides management of SESE human resource (HR) activities. As proposed, this model provides the School with multiple HR specialists, thus addressing one of the capacity issues. However, close interaction with the HR team has still been necessary in the early phase of this new arrangement. Conclusions on the future appropriateness of similar shared services await a longer evaluation of the HR model. In the meanwhile, we will develop a compelling and data-driven case to the College and University for more resources.

Evaluation metrics:

Total number of grant proposals submitted

Ticket response and closure time, aggregated by department, to ensure fair allocation of resource and time

Total cost of business operations and IT support relative to total number of faculty, research staff, and students (nb "efficiency")

Surveyed feedback on business operations and IT

- ***Enrich the environment of SESE so that it is welcoming and promotes respect and value of all***

As evidenced by a climate survey conducted by LAS in 2024, the perception across SESE is that it offers a welcoming environment. This is summarized by one of the respondents: “Warm people, thoughtful leadership, spirit of inclusion for everyone. Faculty, staff and students are all given consideration.” Survey respondents also believe that efforts across SESE have led to increased representation, with “recent hires including women in departments where they were previously underrepresented.” Implicit efforts have been productive as well. Said another respondent: “We take care of our undergraduates well, which means often students from underrepresented groups seek us out.”

Indeed, one pathway toward the strategic goal of promoting respect and value of all is to have a student body and faculty that reflects the composition of the State of Illinois. In addition to the efforts noted above, SESE’s involvement in the AGU Bridge Program is one means of increasing the number of graduate students from underrepresented groups. Thus far, the success of our recruitment through this program has been limited, but as part of this goal, the School will seek ways to enhance faculty participation in it, including identification of funds for student support.

Another pathway is through SESE-wide activities. For example, the annual SESE BBQ held during the first week of the new academic year is meant to promote a welcoming environment, as is the SESE Research Review held typically in February. We will continue to explore ways to enhance both activities, and also consider the implementation of additional activities, especially to engage the ESES students. Examples include SESE staff-hosted cookie hours with students, and student-hosted staff appreciation reception.

One challenge to achieving this goal is space: most respondents to the LAS climate survey indicated that the physical space is the most unwelcoming aspect of the School. Accordingly, the School will use its own survey to better understand this response, and then address it as possible given the overall space limitation (as noted with Strategic Goal 4).

Evaluation metrics:

Responses from subsequent climate surveys conducted by School  
Division of Management Information (DMI) statistics

- ***Support the growth of all academic programs within SESE***

According to the Illinois Division of Management Information (DMI), the total number of specialized faculty (SF) members in SESE increased from 6 in 2015 to 16 currently. In contrast, the total tenure-system faculty (TS) count within SESE decreased from 41 in 2015 to 38 currently. The School will advocate for the strategic growth of TS positions back at least to 2015 levels; this could possibly be achieved through the organization of proposals for faculty cluster hires, provided that these align with the strategic goals of the departments. The School will also argue for sustained support of the SF positions.

Indeed, three of the ten additional SF members were hired by the SESE departments to lead online graduate programs that were developed through an Investment for Growth (IFG) grant to the School. Currently, 81 graduate students are enrolled in these online programs, and there is potential for further increases in enrollment. As part of this strategic goal, the School will help the departments identify the additional resources needed to accommodate such enrollment increases, and will also continue to contribute to the coordination of these graduate online programs.

Evaluation metrics:

Total number of students in individual academic programs

Total number of all faculty members

Total number of TS faculty members