2024 Technology Fee Full Proposal Submission Form

Full Proposals are to be completed and approved by a core UFIT Director (listed below) by the published deadlines for the Technology Fee Advisory Committee to review and select those Full Proposals to be forwarded to the CIO for funding recommendation. This Committee acts in an advisory capacity to the CIO, who will decide on projects to be funded and implemented.

Process:

This is the second stage of the grant process.

1) As a PI you are invited to submit a full proposal. It must still strictly adhere to the requirements below and submitted to the Committee by the required deadline.
2) The Committee will review the proposals and forward those selected with a recommendation for funding to the CIO.
3) The CIO will make a final decision on project proposals to be funded.

Requirements:

1) Full Proposals must address the criteria below and listed on https://it.ufl.edu/community/technology-fee/scoring-criteria/.
2) Full proposals must be submitted in the required template.

*The core UFIT units and their respective contacts are:

- **Academic Technology (AT)**, The Office of Academic Technology (AT) provides resources, technical assistance, and equipment to assist the University of Florida faculty, staff, and students. The three general divisions of AT include support for media services, instructional technology, and teaching/learning.
  ***Mark McCallister**, Director markm@ufl.edu*
- **Applications, Development and Integrations (ADI)** supports, builds and integrates university-wide cloud and on-premise applications in support of UF's faculty, staff and students. **Nicole Jeffers,** Director ngarvey@ufl.edu
- **Customer Experience & Resources Planning (CERP),** informs the university of IT services, support, and systems, conducts a year-round feedback and listening program, servers as campus advocates for enterprise IT improvements, and manages enterprise-wide technology projects for UF. Alicia Turner, Director, aliciatu@ufl.edu
- **Data Platform and Analytics (DPA),** provides reporting and visualizations, analytics, data engineering, master data management, application integration platform, database administration, and data science services to the university. ***Jim Freymann**, Director, jim.freymann@ufl.edu.*
- **Infrastructure & Communication Technology (ICT)** manages the UF Data Center and delivers hosted server, storage, virtualization, database, email, and related system and connects the University of Florida campuses and UF to the world via high-speed data, video, Wi-Fi, telecommunications, and VoIP services.
  ***Saira Hasnain,** Associate CIO and Senior Director, saira.hasnain@ufl.edu*
- **Information Security (IS)**, Information Security has a mission to preserve the confidentiality, integrity, and availability of restricted and critical data of the University.
  Rob Adams, Chief Information Security Officer, Information Security, rob@ufl.edu
- **Research Computing (RC)**, Research Computing, and the High-Performance Computing Center provides high-performance computing resources and support to UF faculty whose research

depends on large-scale computing.
*Erik Deumens, Director deumens@ufl.edu*Scoring Criteria

Full proposals will be scored using the following criteria:

Scoring Criteria for Technology Fee Full Proposals	
Criteria	Points
The project promotes an exceptional academic environment through the innovative use of technology.	Required[1]
A college dean or director certifies that the project serves the institutional mission and is aligned with the University of Florida strategic plan.	Required[1]
A UFIT associate CIO or director[2] certifies that the proposal is technically feasible, and the initial budget request is a reasonable first approximation of funds required for success.	Required[1]
If the project requires recurring resources, the concept paper and proposal must include a viable sustainability plan[3].	Required[1]
The project is innovative in delivering a new service, resource, implementing a concept or delivery method, and not simply upgrading existing services or facilities.	Required[1]
The 2-year project budget includes only technology items and does not include salary, services, facilities, furniture, and similar items.	Required[1]
The project meets all ADA[4] requirements and complies with the UF Electronic and Information Technology Accessibility Policy.	Required[1]
The project outlined in the concept paper improves student learning experiences.	
The project improves the capacity to create, innovate, and high-quality learning environments.	
If the project is to be used in or by courses, it includes the involvement of course instructors utilizing the technology.	
The project can reach students, faculty, and staff across the University and beyond to achieve a common good.	

The project outlined in the concept paper efficiently uses existing resources and services (does not duplicate services or infrastructure).	
The project improves the technical skills, competency, and success rate of students.	

[1] Proposals not meeting this requirement will not be considered.
[2] These are direct reports to the CIO.
[3] Recurring funds must be provided by the unit of the proposer or generated by the project.
[4] The American Disabilities Act (ADA) requires that Web and other resources provide individuals with disabilities an equivalent experience to individuals without disabilities

Instructions:

In filling the attached template make sure that the requirements in the Scoring Criteria Table are met. Concept Proposals not meeting the requirements will not be considered. Also note how the full proposals are scored and address each of the scoring criteria in your proposal.

The template includes the following items:

1) **Title**: Make sure that the title is descriptive and short. Avoid technical jargon and focus on the benefits of the project.
2) **Proposer**, affiliation and, contact information: Make sure that a contact person is clearly identified, as well as the person's affiliation and contact information (***email, department, unit or organization, physical address, and phone***).
3) **Purpose**: What is the proposal intended to improve or facilitate? Why is it important to do so? What are the expected outcomes? How is this project innovative, and could it be scaled in the future? Clearly outline the objectives of this project so that it can easily be determined if they are achieved by the end of the project.
4) **Impact/Benefit**: Who benefits? In what ways? What are the implications of how this project is innovative? Does it leverage existing resources?
5) **Sustainability**: If the project requires recurring resources, how will these be acquired? Who will be responsible and is committed to providing these resources.
6) **Timeline**: What specific activities are to be carried out, and when is each objective/benchmark achieved?
7) **Budget & Budget Narrative**: What is the expected cost of the project? Include startup costs, operating costs, and equipment costs when appropriate. A maximum of two years is allowed for budget.

Items 1-7 must not exceed four (4) pages. Do not alter the font or the margins.

Items 1-7 must be submitted electronically in the attached template to alallen@ufl.edu.

All materials must be received by the advertised deadline. Materials not received by April 7, 2024, will be returned to the proposer for submission in the next cycle

2024 Technology Fee Full Proposal

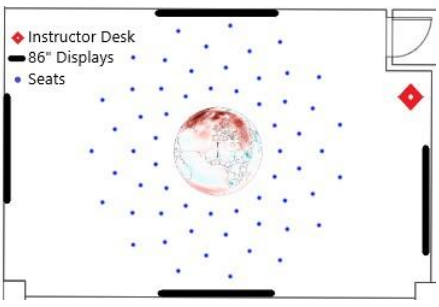
Title: Revolutionizing Learning in the Geosciences at UF: The OmniGlobe Initiative

Proposers: **Dr. Jane Southworth**, Chair Department of Geography, CLAS & Co-Chair AI Across the Curriculum Program. (jsouthwo@ufl.edu - 3141 Turlington Hall 330 Newell Dr. Gainesville, FL 32611 – (352) 392-0494) and **Brad Harwood**, IT Project Manager II, College of Liberal Arts & Sciences IT (bharwood@ufl.edu - 301 Bryant Hall 1772 Stadium Rd, Gainesville FL 32611 – (352) 846-1990)
Sponsoring Organization: UF Department of Geography & College of Liberal Arts and Sciences IT

Purpose and Specific Objectives: The University of Florida (UF) stands at the threshold of a significant academic leap, with the potential acquisition of an OmniGlobe for our newly envisioned classroom. This proposal, supported by CLAS IT, seeks funding from the Student Technology Fee Academic Innovation Grants to purchase the OmniGlobe. This cutting-edge technology will not only revolutionize teaching in geography, geoAI, remote sensing, GIS, atmospheric sciences, and meteorology but also extend its benefits to geology, astronomy, anthropology, and more. The OmniGlobe's introduction aligns perfectly with the University's mission and strategic plan, promising an innovative, inclusive, and interdisciplinary educational experience.

The transformation of Turlington B115 from a Chemistry Lab into an innovative classroom space marks a significant step towards enhancing the educational landscape within the Geography, Earth Science, and Meteorology programs at UF. This renovation, funded by the Geography department, is not just a physical change but a pedagogical leap forward, aimed at creating a dynamic learning environment for students. The newly designed classroom will house the OmniGlobe, a centerpiece technology that promises to revolutionize the way geographical, atmospheric, and Earth science concepts are taught and understood. The room, with a capacity to accommodate between 40-49 students, is being conceptualized to foster interactive learning, collaboration, and engagement. This size ensures that the space is intimate enough for interactive discussions and large enough to facilitate group work and hands-on activities with the OmniGlobe technology. Key features of the room will include:

- Flexible Seating and Desks: Furniture on wheels will allow for easy reconfiguration of the classroom layout to suit different teaching styles and learning activities, from lectures to workshops and group projects. Already purchased and ready for use.
- Advanced Technological Infrastructure: Beyond the OmniGlobe, the classroom will be equipped with high-definition 84” monitors on all four walls, enabling 360-degree views of related materials and data visualizations. This setup ensures that no matter where a student sits, they have an unobstructed view of the content being discussed. Will be purchased by Geography.
- Interactive Learning Tools: Alongside the OmniGlobe classroom is an adjoining computing lab (being created by Geography) which will feature state-of-the-art computing and data visualization tools, making it a hub for geoAI, remote sensing, GIS, and earth science education.
- Adaptable Lighting and Acoustics: Designed with learning in mind, the room will have lighting and acoustics that can be adjusted to optimize the learning environment, whether for lectures, group discussions, or multimedia presentations.



By transforming Turlington B115 into this new, innovative classroom space, the Geography and Meteorology programs at UF are not just changing the physical layout but are redefining the educational experience. This space will enable educators to employ cutting-edge pedagogical approaches, making complex concepts more accessible and engaging for students. The integration of the OmniGlobe into this environment underscores a commitment to employing technology that

not only enhances teaching and learning but also prepares students to tackle the challenges of a rapidly changing world.

Impact/Benefit: The OmniGlobe represents an unparalleled opportunity to foster an exceptional academic environment at UF. Its immersive, interactive display allows for a dynamic exploration of the Earth and beyond, offering students a unique, hands-on learning experience. This technology enables the visualization of complex data on a three-dimensional sphere, making it an ideal tool for courses that struggle with the limitations of 2D projections. By integrating the OmniGlobe into our curriculum, we propose to:

- Enhance spatial understanding and visualization skills in geography, meteorology, and related disciplines.
- Implement interactive learning sessions, promoting student engagement and participation.
- Provide access to real-time data for immediate application in classroom discussions and projects.
- Support interdisciplinary education by making the globe available to various departments, fostering a broader understanding of global phenomena.

In the rapidly evolving landscape of higher education, the integration of digital technologies into pedagogical practices stands out as a beacon of innovation, offering unprecedented opportunities for enhancing teaching and learning. The OmniGlobe, with its state-of-the-art capabilities, represents a quintessential example of such technological advancements, poised to revolutionize the educational experience for students at the UF. The introduction of the OmniGlobe at the University of Florida is not merely an investment in advanced technology; it is a strategic move towards redefining pedagogical practices through innovation. Leveraging the compelling evidence from scientific literature, the OmniGlobe promises to enrich the educational landscape at UF by providing an immersive, interactive, and multidisciplinary learning environment. It stands as a testament to UF's commitment to harnessing technology for educational excellence, preparing students to navigate and contribute to a complex, interconnected world with greater understanding, competency, and curiosity.

In the quest to redefine educational paradigms at UF, the adoption of the OmniGlobe presents an unprecedented opportunity to leverage digital technology for pedagogical innovation. This proposal draws upon a breadth of scientific literature to illustrate the significant advancements in teaching and learning that such technology can facilitate, particularly in the fields of geography, Earth science, and meteorology. The OmniGlobe stands at the convergence of interactive learning, enhanced visualization, and multidisciplinary education. It embodies a transformative approach to engaging students with complex scientific concepts through immersive, three-dimensional representations of the Earth and atmospheric phenomena. Studies have consistently shown that digital globe systems, by facilitating a hands-on learning experience, significantly improve student performance and retention of knowledge. This is particularly relevant in subjects where understanding spatial relationships and dynamic processes is crucial. The effectiveness of such systems in enhancing learning outcomes can be attributed to their ability to present information through multiple modes of representation, thereby aligning with Mayer's Cognitive Theory of Multimedia Learning (CTML) and the Cognitive Flexibility Theory (CFT) (Liou, Bhagat, & Chang, 2018). Moreover, the advent of digital technologies in education, accelerated by the recent global pivot towards digital learning platforms, underscores the importance of integrating innovative tools like the OmniGlobe into educational practices. Digital technologies have been recognized for their role in facilitating a paradigm shift in education, moving away from traditional pedagogies towards more interactive, collaborative, and student-centered learning environments (Haleem et al., 2022). The OmniGlobe, with its interactive capabilities, serves as a co-creator of knowledge, a mentor, and an assessor, thereby embodying the shift towards a more engaging and participatory educational experience.

The significance of interactive data visualizations in enhancing student engagement and perceived learning cannot be overstated. Research indicates that students engaging with interactive tools demonstrate greater engagement and a deeper understanding of complex concepts compared to traditional learning methods (Cervenec et al., 2022). This is particularly relevant in geosciences, where understanding the interconnectedness of Earth's systems is crucial. The OmniGlobe's capacity to visualize global phenomena in real-time offers an unparalleled tool for educators to bring these concepts to life in the classroom. Furthermore, the OmniGlobe's alignment with initiatives such as NOAA's *Science On a Sphere*® highlights its potential as an educational tool not only within the classroom

but also as a resource for the wider community, including informal education settings like UF student groups and public science/speaker events. This underscores the OmniGlobe's role in advancing public literacy in Earth system science, fostering a broader understanding and appreciation of global environmental processes (NOAA website, Science On a Sphere Earth System Overview (youtube.com) provides an overview of the larger system, we are looking to buy a smaller more focused system via OmniGlobe (OmniGlobes – Globoccess).

The utilization of digital globes in education, as evidenced by research, offers a variety of positive impacts on learning outcomes, from increased engagement and interest in scientific subjects to improved comprehension of complex spatial data and Earth system processes (Beaulieu et al., 2015). By integrating the OmniGlobe into UF's educational toolkit, we are poised to offer students a uniquely interactive and immersive learning experience that not only enhances their academic performance but also prepares them for the complexities of a globalized world. The OmniGlobe represents a nexus of educational innovation, offering a platform for interactive, immersive, and multidisciplinary learning. Its introduction to UF will not only enhance the educational experience for students across a range of disciplines and courses but also position UF at the forefront of technological integration in higher education. By embracing this opportunity, we can inspire a new generation of students to explore, understand, and solve the complex environmental challenges facing our world.

The OmniGlobe is not merely an upgrade to existing services; it is a pioneering technology at UF. It offers an innovative approach to teaching and learning, particularly in disciplines where global perspectives are crucial. Our project aims to eliminate the errors introduced by 2D representations, enhancing students' comprehension of complex geographical and astronomical data.

This initiative will significantly improve student learning experiences by:

- Creating an innovative and high-quality learning environment.
- Involving course instructors in the utilization of the technology, ensuring its effective integration into teaching.
- Making the technology accessible to a wide range of students, faculty, and staff, thereby contributing to the common good.
- Offering workshops, open houses, and outreach activities to raise awareness and train users on the OmniGlobe's capabilities.
- Fully customizable OmniSuite software user interface, accessible via kiosk and tablet, allow for an ADA compliant, tailored and accessible Electronic Information Technology and Communication Accessibility (EITCA) environment.

The OmniGlobe represents a unique resource at UF, with no existing equivalents. This ensures an efficient use of funds, avoiding duplication of services or infrastructure. Moreover, the project will build on UF's existing partnership with the Orlando Science Center, leveraging knowledge and resources to enhance technical skills and competencies among students.

The acquisition of the OmniGlobe through the Student Technology Fee Academic Innovation Grants will mark a significant milestone in UF's quest for educational excellence. By offering an innovative, interactive, and interdisciplinary tool, this project will not only enrich the learning experiences of students across multiple disciplines but also equip them with the skills necessary for success in an increasingly complex and interconnected world [teaching students how to code data for the OmniGlobe is part of our previous experience with this technology via Orlando Science Center/UF NSF proposal funding]. With your support, we can turn this vision into reality, fostering an academic environment that is truly innovative, inclusive, and inspiring.

Sustainability: Understanding the importance of sustainability, the project includes a well-defined plan to manage recurring costs through the use of UFs technology fee for courses utilizing the classroom. This approach ensures the OmniGlobe's software/hardware maintenance and data subscription costs are covered, promoting long-term sustainability and exclusive access for courses that benefit significantly from this technology. In addition, given the work involved on the part of instructors/departments in submitting the request for the technology fee to be

applied to their course (and why) and then prioritizing the teaching of that course in this new classroom and justifying the fee, it will help the department prioritize the request for this classroom use (i.e. they have to do work to use the room, and submit this justification and cost renewal annually). UF clubs [Geography Club, UF Chapter of the American Meteorological Society, etc.), in addition to a number of interdisciplinary institutes: the Florida Climate Institute, the Water Institute and other groups who may wish to have meetings or events/speakers in the space will not be required to pay for those services or apply for these fees. As most classes will focus on daytime use, evenings and times when courses are not using this room, will make the space available for these broader UF groups to take advantage of these facilities. In addition, during the initial year of development, engagement and workshops will be run to introduce different UF groups to these facilities and how to engage in the OmniGlobe pedagogical experience.

Timeline: We anticipate two possible timelines for completion. The first possible target for completion will be during the semester break in December 2024. The second, and most likely of the two completion targets early summer 2025. When grant funds are made available and the OmniGlobe order is placed will ultimately dictate timeline duration. The manufacturer estimates time of delivery at 5-7 months from the order date. Installation is expected to take no more than a week. The timing of installation once the system is delivered will be dependent on the academic calendar and classroom availability.

Budget:

48" Dual OmniGlobe	$85,000
OmniSuite Software Package	$7,950
Touchscreen Terminal	$4,000
Dell Workstation	$2,000
Surface Pro Tablet	$800
Transportation and Installation	$6,000
Misc. Cables & Accessories	$1,000
Total	$106,750

References:

1. Liou, W.K., Bhagat, K.K., & Chang, C.Y. (2018). The design, implementation, and evaluation of a digital interactive globe system integrated into an Earth Science course. *Education Tech Research Dev*, 66, 545–561. https://doi.org/10.1007/s11423-018-9573-2.

2. Haleem, A., Javaid, M., Qadri, M., & Suman, R. (2022). Understanding the Role of Digital Technologies in Education: A review. *Sustainable Operations and Computers*, 3.

3. Cervenec, J., Fox, J., Peggau, K., Wilson, A.B., Li, B., Hu, D., Chang, R., Wong, J., & Bossley, C. (2022). Interactive data visualizations of Earth's atmosphere: Effects on student engagement and perceived learning. *Journal of Geoscience Education*, 70:4, 517-529. https://doi.org/10.1080/10899995.2022.2038963

4. NOAA website on science on a sphere - Science On a Sphere®. About Science On a Sphere® - Science On a Sphere (noaa.gov)

5. Stace Beaulieu, Meredith Emery, Annette Brickley, Abbey Spargo, Kathleen Patterson, Katherine Joyce, Ti m Silva & Katherine Madin (2015). Using Digital Globes to Explore the Deep Sea and Advance Public Literacy in Earth System Science, Journal of Geoscience Education, 63:4, 332-343, DOI: 10.5408/14-067.1

Technology Fee Full Proposal Template Sponsor Signature Form

Title: Revolutionizing Learning in the Geosciences at UF: The OmniGlobe Initiative
Proposer's Name: Dr. Jane Southworth; Bradley Harwood

Note: By signing this form the sponsor is making a commitment to support the project. This may include providing startup, recurring or equipment replacement resources as presented in the attached budget.

Signature of sponsor: College Dean, or Unit Director, or VP for Student Affairs.

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David E. Richardson **Date**
Dean – College of Liberal Arts & Sciences

Note: By signing this form the UF IT unit is making a commitment to manage the project if selected for submission of a full proposal. This may include providing startup, recurring or equipment replacement resources as presented in the attached budget.

Signature of unit UFIT Director of a core unit:

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Mark McCallister **Date**
Director – Academic Technology