

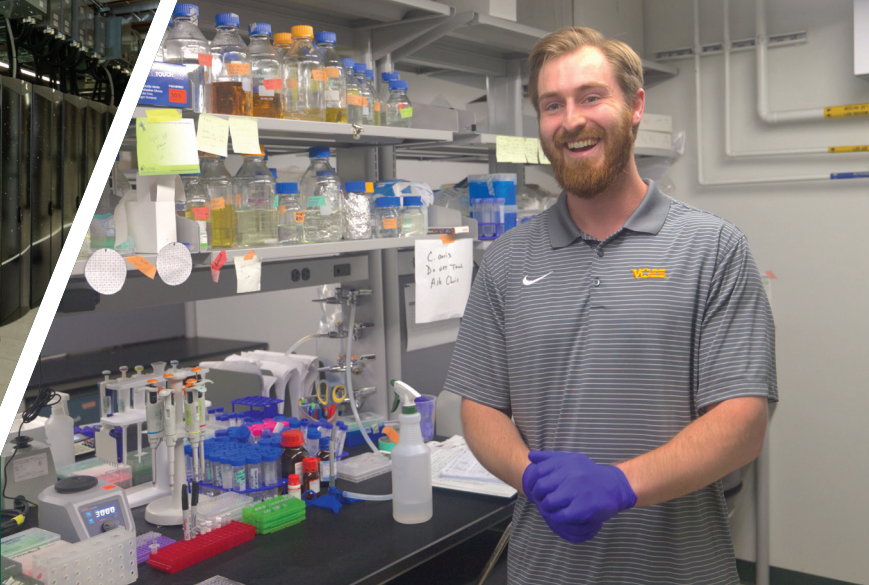
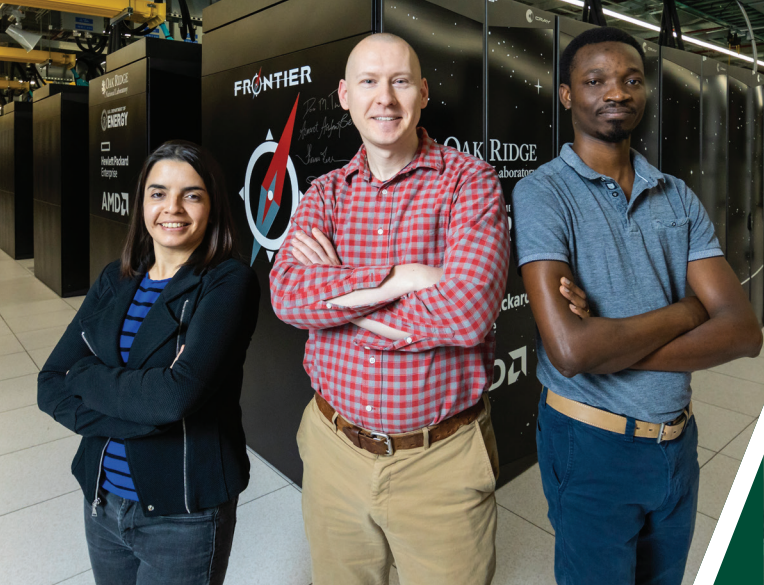


THE UNIVERSITY OF  
TENNESSEE

**Oak Ridge**  
Innovation Institute

# STRATEGIC PLAN 2023-2028





## INTRODUCTION

The University of Tennessee-Oak Ridge Innovation Institute (UT-ORII) was launched by the University of Tennessee and Oak Ridge National Laboratory in 2021, in response to America's need for a stronger pool of science, technology, engineering and mathematics (STEM) talent.

Leveraging a partnership between UT and ORNL that dates back to the Manhattan Project, UT-ORII strategically combines the resources of Tennessee's statewide university system and the country's largest multi-disciplinary national laboratory to accelerate collaborative discovery, innovation and interdisciplinary graduate education, and to deliver top-tier talent for industry, government and academia.

The following Strategic Plan provides the goals, objectives and metrics to guide UT-ORII's efforts for the next five years.

### Mission

To strategically align the expertise and infrastructure of the University of Tennessee and Oak Ridge National Laboratory in interdisciplinary research and graduate education.

### Vision

To become a coveted home for convergent research and talent development, helping maintain U.S. prominence as a global innovation leader and provide tangible impact to Tennessee.

### UT-ORII will...

- Be the umbrella organization for all joint UT-ORNL programs; providing vision, leadership, oversight, coordination and alignment of all interactions between UT and ORNL
- Accelerate world-leading, impactful innovation on convergent research topics by leveraging the collective strengths of ORNL and UT
- Enhance the national and international reputations and impact of UT and ORNL, making both institutions better
- Ensure transparency, promote engagement and provide operational excellence for pursuing joint activities that enhance and complement, but do not compete with ORNL or UT's existing endeavors
- Elevate UT's PhD programs, preparing students for future success in industry, national labs and academia
- Recruit and retain top-level STEM talent in the Oak Ridge Corridor
- Develop new and enhance existing partnerships driving economic development and K-12 STEM outreach across the state of Tennessee
- Strengthen core academic units at UT and existing groups at ORNL

# KEY ATTRIBUTES & RESOURCES

## UT-ORII's key attributes and resources:

World class technology, scientific expertise, and academic programs contained within:

- ORNL, the DOE Office of Science's largest national lab
- UT System, the state's oldest and largest university system with six campuses including the state's flagship R1 university
- Joint UT-ORNL PhD programs
- Discipline-specific MS and PhD programs in relevant areas of science
- Network of partnerships that support K-12 outreach and education
- History of successful collaborative research between UT and ORNL researchers
- Commitment from UT and ORNL to further the 80-year partnership between the two institutions



# RESEARCH

## UT-ORII's research activities will...

- Drive sustained research advances in areas of regional, national, and global need
- Focus attention on clearly defined research thrusts where the state of Tennessee can emerge as a clear national leader
- Develop early- and mid-career researchers who strengthen existing UT academic units and ORNL research groups through efforts that build joint, trans- and inter-disciplinary research programs
- Provide avenues for senior researchers to expand their technical vision and achieve national and international recognition by leveraging joint activities

## Tactics

1. Develop and facilitate joint research activities that leverage the strengths of and enhance the scientific portfolios of both institutions
2. Connect researchers from across the UT System to ORNL researchers
3. Select and manage Convergent Research Initiatives (CRIs), from launch to a long-term sustained phase
4. Create distinctive, sustainable career paths for research faculty at UT working on topics relevant to CRIs
5. Provide well-defined career paths for ORNL staff hired within CRIs
6. Coordinate with UT and ORNL stakeholders to recruit and launch new Governor's Chairs



## Research

7. Create clearly defined avenues for senior researchers, including but not limited to Governor's Chairs, to achieve national and international recognition
8. Use UT-ORII's Science Alliance programs to facilitate research interactions between UT and ORNL
9. Catalyze successful center-level proposals by UT faculty and ORNL staff
10. Develop a resilient staffing model to provide proposal development and research administration support to UT-ORII joint faculty
11. Provide efficient mechanisms to facilitate joint funding between UT and ORNL
12. Prudently deploy state resources as matching funds to further UT-ORII's goals

## Metrics

1. Dollar value of research proposals submitted and awarded catalyzed by UT-ORII activity (counting only full proposals, not preproposals/white papers)
  - (i) Proposals by UT-ORII research faculty and ORNL staff [Goal: Proposals exceeding \$200M in total value submitted annually by 2028]
  - (ii) Proposals by Governor's Chairs
  - (iii) Proposals resulting from Science Alliance seed funding
2. Dollar value of new funding catalyzed by UT-ORII activity [Goal: Annual new funding associated with UT-ORII supported researchers or students totaling more than \$50M by 2028]
3. Summary of specific team building, partnering, and proposal development activities undertaken by UT-ORII
4. Number of professional awards to Governor's Chairs and other UT-ORII affiliated researchers
  - (i) Number of award nominations coordinated by UT-ORII





# GRADUATE EDUCATION

## UT-ORII's graduate education activities will...

- Train PhD students from diverse backgrounds to tackle complex scientific problems of national and international significance
- Enable sustained growth of UT's PhD student programs and participation of UT students in research at ORNL
- Leverage the impact of ORNL's reputation and capabilities in recruiting talented UT PhD students
- Prepare PhD students for future career success in industry, national labs, and academia
- Strengthen interdisciplinary PhD programs within the Bredesen Center and disciplinary degree programs within existing academic departments
- Leverage educational and training resources developed in the Bredesen Center to aid students in other UT graduate programs
- Operate successful undergraduate research experiences that expand the pool of STEM PhD students for UT and the nation

## Tactics

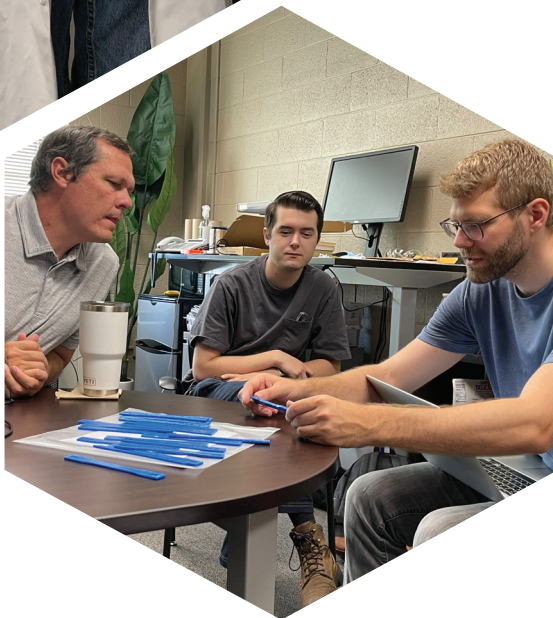
1. By Fall 2028, demonstrate sustained enrollment of 80 new PhD students per year in Bredesen Center programs
2. By Fall 2028, demonstrate sustained enrollment of 35 new PhD students in UT disciplinary PhD programs performing thesis research at ORNL
3. Establish strong student support mechanisms to promote timely progress to degree milestones by students performing research at ORNL
4. Develop a resilient staffing model to provide course instruction and student support functions in the Bredesen Center
5. Ensure >75% of eligible Bredesen Center students complete competitive applications to one or more prestigious fellowship programs (e.g. GRFP, CDSEG)
6. Integrate development of professional skills into the curricula and training of PhD students
7. Provide well-defined and efficient procedures that enable PhD students from all UT academic units to perform thesis research at ORNL, including matching of potential research mentors and students and completion of MOUs between UT-ORII and academic departments
8. Annually operate a summer research experience for at least 40 undergraduate students showcasing opportunities at UT and ORNL, coordinating with related activities at both institutions as needed
9. Enhance PhD joint graduate education programs across the UT System





## Metrics

1. Total number of PhD students (Bredesen Center + other students performing thesis research at ORNL + students supported by Science Alliance programs)
  - (i) Diversity of student population [Goal: greater participation by underrepresented students than national average in STEM-relevant disciplines using NSF data as baseline]
  - (ii) Number of PhDs granted [Goal: 100 PhDs granted per year to students who received substantial UT-ORII support during their thesis studies by 2030]
  - (iii) Number of MSs granted to graduate students who received financial support from UT-ORII
  - (iv) Number of external fellowship applications completed, and number of fellowships awarded [Goal: >75% of eligible Bredesen Center students complete competitive applications to one or more prestigious fellowship programs annually (e.g. GRFP, CDSEG)]
  
2. Total number of undergraduate summer students
  - (i) Diversity of student population [Goal: greater participation by underrepresented students than national average in STEM-relevant disciplines using NSF data as baseline]
  - (ii) Number of students from previous years who went on to graduate studies at any university [Goal: More than 65% of summer students go on to graduate studies]
  - (iii) Number of students returning to UT/ORNL for research internships or graduate program [Goal: More than 35% of summer students return to UT and/or ORNL]
  
3. Number of undergraduate students from any UT or ORNL experience provided with information about the Bredesen Center via a one-on-one contact [Goal: Information provided to more than 500 students annually]





# WORK FORCE & ECONOMIC DEVELOPMENT

## UT-ORII's activities supporting work force and economic development will...

- Recognize that long-term resilience of UT and ORNL's reputation and research enterprises relies on K-12 student preparation and community colleges in the state
- Align UT-ORII's resources with distinctive topics that lead to sustained economic development in the state

### Tactics

1. Create distinctive partnerships focused on sustained STEM-oriented middle school outreach with state-wide impact
2. Enable connection between applied research outcomes in UT-ORII initiatives and industrial partners in the state
3. Strategically explore partnerships with community colleges and other public universities in the state to enhance development of the state's STEM workforce

### Metrics

1. Number of middle schools reached via outreach





# METRICS

## Annual numerical metrics to track UT-ORII's progress

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3. Dollar value of new funding catalyzed by UT-ORII activity [Goal: Annual new funding associated with UT-ORII supported researchers or students totaling more than \$50M by 2028]
4. Summary of specific team building, partnering, and proposal development activities undertaken by UT-ORII
5. Publications for UT-ORII joint faculty and supported students [Goal: More than 300 peer-reviewed publications with UT-ORII-supported coauthors annually by 2028]
  - (i) Publications with ORNL and UT coauthors
6. Total number of undergraduate summer students
  - (i) Diversity of student population [Goal: greater participation by underrepresented students than national average in STEM-relevant disciplines using NSF data as baseline]
  - (ii) Number of students from previous years who went on to graduate studies at any university [Goal: More than 65% of summer students go on to graduate studies]
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8. Number of middle schools reached via outreach
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