Opportunity Title: Advanced Science and Engineering of Materials and Manufacturing
Opportunity Reference Code: ORIUT-AdvancedScience-2021

Organization	UT-ORII
Reference Code	ORIUT-AdvancedScience-2021
How to Apply	**Apply Today! Selection and Review:**

- University of Tennessee researchers will review applications on a rolling basis. Be sure to apply early to be considered for one of the prestigious slots.
- Internships are expected to be awarded in March and April.
- Duration is 10 weeks from May 23-July 29, 2022

Application Deadline 4/15/2022 3:00:00 PM Eastern Time Zone

Description **Are you a current undergrad looking for a prestigious research opportunity? Do you want to gain hands-on experience at a national laboratory?**

The Oak Ridge Institute at The University of Tennessee is seeking applications from undergraduate students currently enrolled in colleges and universities across the US who are interested in participating in its Science Alliance Student Mentoring and Research Training (SMaRT) Program. Students who will be rising sophomores, juniors and seniors in fall of 2022 are eligible to apply. This prominent program will select 30 qualified candidates to participate in this 10-week summer program scheduled for May 23 until July 29, 2022. As a selected intern, you will receive a funded internship, including stipends, housing and an allowance for travel to and from Knoxville, TN. This program will focus on four interdisciplinary areas:

1. **Apply to: [Electrochemical Energy Systems](#)**
2. **Apply to: [Advanced Science and Engineering of Materials and Manufacturing](#)**
3. **Apply to: [Predictive Systems Biology for Circular and Sustainable Economies](#)**
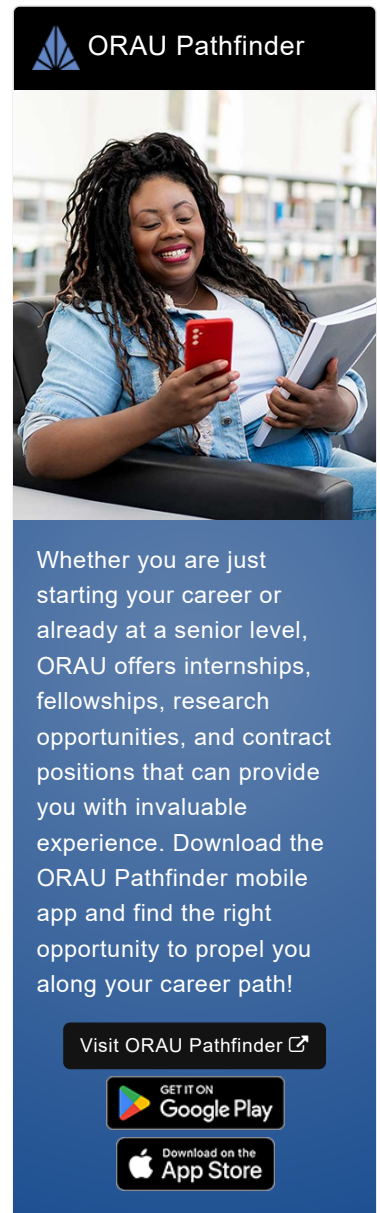4. **Apply to: [Autonomous, Smart, Secure and Resilient Energy Systems](#)**

*Data science and engineering threads will be woven through each of these four areas.
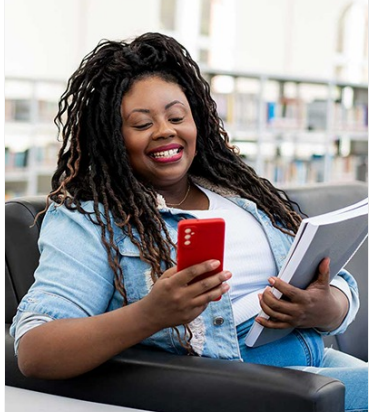
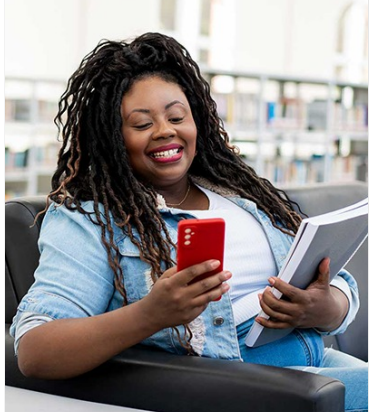**Check out this YouTube video from past participants:** [UT-ORII—2021 Summer Internship Program](#)

You will engage in interdisciplinary research jointly administered by some of the nation's top researchers from The University of Tennessee and Oak Ridge National Laboratory. Dedicated graduate student mentors will work closely with you, and through focused professional development activities you will prepare materials necessary to apply for future opportunities. This summer program will build your network, build your resume and prepare you for the next steps in your academic and professional career.

About the Advanced Science and Engineering of Materials and Manufacturing opportunity:
UT-ORII SMaRT interns will focus on advanced manufacturing and processing

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technologies at the intersection of modeling and simulation, artificial intelligence (AI), and advanced sensors and controls to enable digital and secure manufacturing. The applications include additive and hybrid manufacturing, automation, and energy efficient separation and recycling technologies for polymeric composite, magnets, and battery materials. UT and ORNL have provided pathways to deploy additive manufacturing and polymer composites to a wide range of industries by collaborating with academia and other agencies.

UT-ORII will focus on the development and demonstration of digital threads throughout manufacturing operations, resulting in a secure and highly flexible enterprise. This approach will be used to qualify manufactured components utilizing data science tools [AI, machine learning (ML), neural networking (NN)] trained on data sets generated at various length and time scales. This will enable the workforce to learn digital thread tools, integrated computational materials engineering24, machine learning, and explainable AI for manufacturing of high value-added components and non-traditional recycling technologies that are leading the circular economy.

About the Oak Ridge Institute at The University of Tennessee (UT-ORII):

The University of Tennessee (UT) and Oak Ridge National Laboratory (ORNL) have launched the UT-ORII to foster interdisciplinary research and education. The primary goals of the institute are to: attract talent to East Tennessee and to develop a world-class STEM workforce that will, among other things, create and lead the industries of the future. UT-ORII brings together faculty, research scientists, students, and ORNL researchers to create a collaborative environment in which interdisciplinary discovery and creativity flourish.

Benefits to you as a SMaRT Intern:

The interdisciplinary atmosphere provided at the UT-ORII will expose you to team science, an increasingly important platform for research. As an intern, you will also gain first-hand research experience in emerging fields (e.g. quantum information sciences and data sciences) while working with state-of-the-art research instruments (e.g. 3D printers of metals and polymers). Together, these experiences will help prepare you for exciting and rewarding careers. Interns will prepare CVs, personal statements for future opportunities, as well as short research presentations and scientific posters that can be presented at conferences. Graduate student mentors will work closely with SMaRT interns, and will be available to share their graduate school experiences. Overall, participation in the SMaRT Program will help you understand and evaluate their future career options, including in academia, national laboratories, and in the industries of the future.

Stipends, Housing and Travel:

- The stipend will be $694 per week.
- University of TN on-campus housing will be provided. Housing will be single room.
- Travel will be reimbursed for inbound and outbound expenses up to $1,000 for participants who live more than fifty miles, one-way, from the assigned hosting site.

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Have questions about the program or how to stand out as a top candidate?

- Please email our recruiter at marlo.milton@orau.org or Chelsea.hill@orau.org
- Dr. Shawn R. Campagna has reserved office hours for drop-in visits related to these opportunities. His office is open to visitors after 3 p.m. EST each Friday. He can be reached via email at campagna@utk.edu.

To apply, be sure to have the following:

- Statement of Interest/Personal Statement (explaining goals, experiences, and skills relevant to the SMaRT Program)
- Resume or CV (PDF)
- Transcripts/Academic Records
  - Unofficial transcripts or copies of the student academic records printed by the applicant or by academic advisors from internal institutional systems may be submitted.
  - Transcripts/Academic Records must include name of the academic institution, name of the student, and all completed/in progress coursework.
  - Transcripts/Academic Records must show the equivalent of at least one year of full-time post-secondary school attendance prior to Summer 2022.
- Two Letters of Recommendation are required. The Zintellect system will send notifications to referees on your behalf when you supply names and email addresses during the application process.

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Any degree .
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (46 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (28 👁)