

**Opportunity Title:** Computational Science and Technology Advanced Research Studies (C-STARS) - Modeling and Simulation

**Opportunity Reference Code:** ORNL\_C-STARS\_MS

**Organization** Oak Ridge National Laboratory (ORNL)  
**Reference Code** ORNL\_C-STARS\_MS  
**How to Apply** Last updated: January 12, 2021.

Due to health and safety concerns over the COVID-19 outbreak, Oak Ridge National Laboratory is restricting visitor access to campus and has temporarily suspended new internship appointments. You may continue to apply to this opportunity, but appointment offers will vary by program and will only be issued once it is deemed safe to do so.

For the latest information and guidance, please visit these COVID-19 resources:

- Centers for Disease Control & Prevention: <https://www.cdc.gov/coronavirus/2019-nCoV/summary.html>
- State Department: <https://travel.state.gov/content/travel/en/traveladvisories/ea/novel-coronavirus-hubei-province--china.html>
- Department of Energy: <https://www.energy.gov/coronavirus-hub>

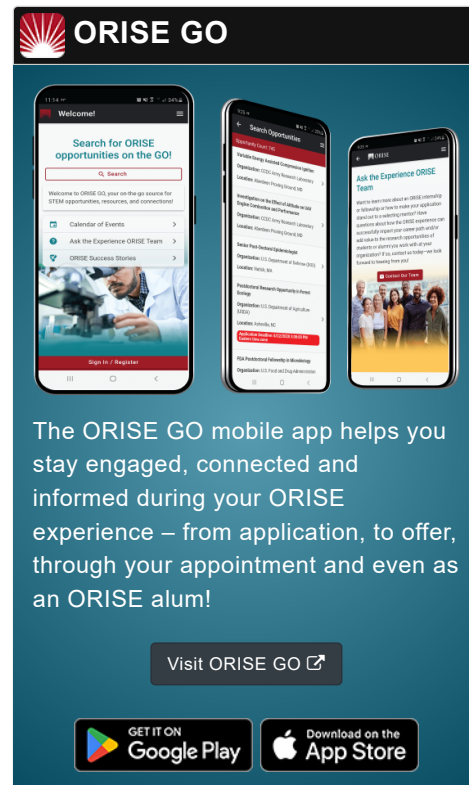
If you have any questions, please contact us at [ORNLedu@ornl.gov](mailto:ORNLedu@ornl.gov).

To submit your application, you will need to answer the following four short-answer questions:


1. **Goals and Interest Areas**  
The Goals and Interest Areas is your opportunity to highlight the specific research topics you're interested in. Mentors primarily find applications for initial review based on keywords present in their application.
2. **Experience**
3. **Skills**
4. **Program Participation** (if you have previously participated in an ORISE program)

You will also need to provide

1. **Official English-language verification of your graduate education history and status -- all of the following that apply:**
  - Previous official transcript showing enrollment in previous graduate program if left without degree completion
  - Current official transcript showing enrollment in graduate program when appointment begins OR Proof of current enrollment when appointment begins if not shown on official transcript



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- Verification of MS degree completion (official transcript or degree certificate) -- *NOTE: if you have previously completed a Master's degree or equivalency, we require proof of that degree even if you're currently enrolled in another graduate program*

**2. Contact information for two individuals to provide recommendations**

Recommendation letter writers should be professional contacts who can speak to your research capability and ability to conduct yourself in a professional manner.

**3. Current resume**

**4. Abstract/reprint** -- at least one of the following:

1. a reprint of a journal article you have authored
2. an abstract of a journal article you have authored
3. an abstract of a conference presentation you have authored
4. an abstract of your current research, even if unpublished

Once your application is submitted and complete (including all attachments and recommendations), your application will be available to ORNL researchers to view for consideration. Your application will remain active for 12 months after submission. When the twelve month mark is approaching, you will receive a notification that your application is expiring should you wish to resubmit it. This opportunity does not close to applications at any point in the year, so you will not receive a notice that your application was rejected. You may view your application status (including status of recommendations) at any time by logging in to Zintellect.com.

**Description** Computational Science and Technology Advanced Research Studies (C-STARS) graduate researchers will collaborate with Oak Ridge National Laboratory (ORNL) scientists on solving problems of national and scientific interest, engage in educational and professional development opportunities, and present their research to ORNL's scientists. Participants will develop their skills to help solve scientific computational challenges using advanced computational methods, machine learning, and data science. They will learn from ORNL mentors who have expertise in computational research and/or domain sciences such as physics, materials, or biology. Research projects may include any research areas that support ORNL missions in the basic and applied sciences, energy, and environment, including but not limited to nuclear systems design and safety, theory and modeling of plasmas, climate change model predictions, transportation systems, sensors and controls, materials theory and simulation, quantum materials, and supercomputing.

The C-STARS program is administered by the STEM Workforce Development Unit of the Oak Ridge Institute for Science and

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Education (ORISE), which is managed by Oak Ridge Associated Universities (ORAU) for the U.S. Department of Energy.

### **Contingencies**

All contingencies of an appointment offer must be met before the applicant can begin an appointment.

Participants who are foreign nationals must receive approval and clearance from the U.S. Department of Energy. This process is initiated by ORNL and could take more than ten weeks. Foreign nationals must also show proof that they have a valid immigration status, which allows them to receive a stipend. Once an offer has been made, the ORISE Immigration Office can assist with obtaining and filing immigration documents.

### **Appointment Period and Renewals**

Appointments are available in all current research and development programs at the laboratory. There are no citizenship requirements for the C-STARS program, although specific research projects may have additional restrictions. The program accepts applications at any time. Appointments are for a minimum of three months or for as long as twelve months, with possibility for extensions.

### **Stipend**

Participants receive a competitive biweekly stipend based on their educational level, research area, and experience. The stipend is taxable.

*For more information, visit [Science Education Programs at ORNL](#) or contact [CSTARS@ornl.gov](mailto:CSTARS@ornl.gov).*

### **Qualifications**

Applicants must be enrolled in a master's or doctoral degree program at an accredited institution. Applications may be submitted at any time during the year, and appointments may begin at any time. Applicants also must be at least 18 years old before starting the program. The C-STARS program does not have citizenship requirements, but if the applicant is not a U.S. citizen, they must have a valid visa status allowing us to pay them a stipend.

Appointments involve a full-time commitment to the research program at ORNL, and the C-STARS participant must be in residence at ORNL during the entire period of the appointment. The participant's research must be conducted in a manner and according to a time schedule that meets the overall research needs of ORNL. To document the effectiveness of the program, participants are required to submit to ORISE a report when they renew or end their program tenure. These reports should summarize their research and include a copy of any publications

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resulting from their appointment. If future papers are published as a result of research they performed at ORNL, copies should be sent to ORISE.

C-STARS participants are required to have coverage under a health insurance plan and must provide proof of such coverage. It is your responsibility to secure insurance coverage before arriving at the appointment site.

**Additional recommended qualifications:**

- Experience with parallel and system programming
- Excellent communication skills (written and oral)
- Expertise with C/C++, Python and/or Java

**Eligibility  
Requirements**

- **Degree:** Currently pursuing a Master's Degree or Doctoral Degree.
- **Overall GPA:** 3.50
- **Discipline(s):**
  - **Business** (2 )
  - **Chemistry and Materials Sciences** (12 )
  - **Computer, Information, and Data Sciences** (16 )
  - **Earth and Geosciences** (21 )
  - **Engineering** (27 )
  - **Environmental and Marine Sciences** (14 )
  - **Life Health and Medical Sciences** (45 )
  - **Mathematics and Statistics** (10 )
  - **Other Non-Science & Engineering** (2 )
  - **Physics** (16 )
  - **Science & Engineering-related** (1 )
  - **Social and Behavioral Sciences** (4 )

**Affirmation**

I certify that I have completed coursework towards a degree in science, technology, engineering, mathematics, or a related field.